PPC LTD

PPC Limited

Assen and Tambotie Mining Right Application

Draft Environmental Impact Report

J36223

DMR ref: NW 30/5/1/2/3/3/2/1/10121 EM

October 2017

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Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

ENVIRONMENTAL IMPACT 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: PPC Limited

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FILE REFERENCE NUMBER SAMRAD: NW 30/5/1/2/2/10121MR

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 ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

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

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

(b) describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;

(c) identify the location of the development footprint within the preferred site based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;

(d) determine the—-

  (i) nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and

  (ii) degree to which these impacts—

    (aa) can be reversed;

    (bb) may cause irreplaceable loss of resources, and

    (cc) can be avoided, managed or mitigated;

(e) identify the most ideal location for the activity within the preferred site based on the lowest level of environmental sensitivity identified during the assessment;

(f) identify, assess, and rank the impacts the activity will impose on the preferred location through the life of the activity;

(g) identify suitable measures to manage, avoid or mitigate identified impacts; and

(h) identify residual risks that need to be managed and monitored.

PART A

SCOPE OF ASSESSMENT AND ENVIRONMENTAL IMPACT ASSESSMENT REPORT

3. Contact Person and correspondence address

a) Details of the EAP

i) Details of the EAP

Name of the Practitioner: **Tashriq Naicker**
Tel No.: **012 471 8918**
Fax No. : **012 348 5878**
e-mail address: **tnaicker@gibb.co.za**

ii) Expertise of the EAP.

a. The qualifications of the EAP

(with evidence).

Tashriq Naicker holds a Bachelor of Science (Hons) degree in Environmental Geology. Please find attached proof of qualifications in **Appendix H** of this application.

b. Summary of the EAP's past experience

(In carrying out the Environmental Impact Assessment Procedure)

Tashriq Naicker is a Senior Environmental Scientist with with over eight (8) years of experience in the environmental management field. His key experience includes Project management, Scoping & Environmental Impact Reporting, Basic Assessments, Environmental Opinions, Geotechnical Risk Assessments, Strategic Integrated Permitting Systems, Legal Environmental Legislation Reviews, Dust and Water Monitoring, Specialist Assistance with regard to bio-monitoring, Water Use Licence Applications, Section 24G Applications as well as Renewable Energy Applications. He has worked extensively in South Africa and also has project experience in Botswana and Zambia.

Please find attached CV for detailed project experience in **Appendix H** of this application.

b) Description of the property.

Farm Name:	• Remaining extent of farm Tambotie 961 (Previously known as Remaining extent of Farm Tambotie 146); • Portion 1 of Farm Tambotie 146 (Previously known as remaining extent of Farm Tambotie 146); • Remaining extent of Farm Assen 161; • Portion 4 of Farm Zandriviers Drift 188 (Previously known as portion 2 of Farm Zandriviers Drift 188); • Remaining extent of Farm Vogelstruispan 189; • Remaining extent of Farm Zandriviers Drift 188; • Portion 38 of Farm Vaalkop 192 (Previously known as portion 3 of Farm Vaalkop 192); and

	• Remaining extent of Farm Beestekraal 948
Application area (Ha)	2658 Ha
Magisterial district:	Brits
Distance and direction from nearest town	The town of Brits is located approximately 52km south of the study area.
21 digit Surveyor General Code for each farm portion	• T0JQ00000000096100000 (previously T0JQ00000000014600000) • T0JQ00000000014600001 • T0JQ00000000016100000 • T0JQ00000000018800004 (previously T0JQ00000000018800002) • T0JQ00000000018900000 • T0JQ00000000018800000 • T0JQ00000000019200038 (previously T0JQ00000000019200003) • T0JQ00000000094800000

c) Locality map

(show nearest town, scale not smaller than 1:250000).

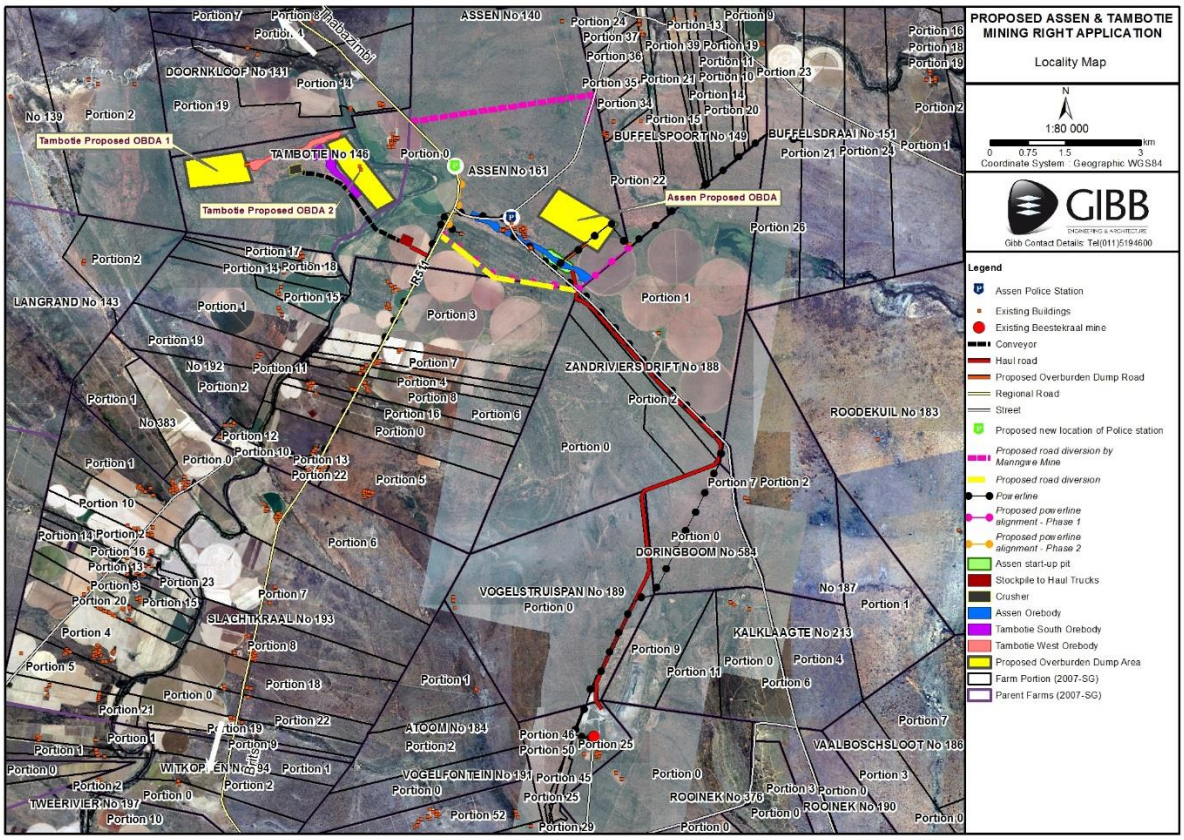


Figure 1: Locality Map of the proposed Assen / Tambotie Ore Bodies and associated infrastructure (2007)

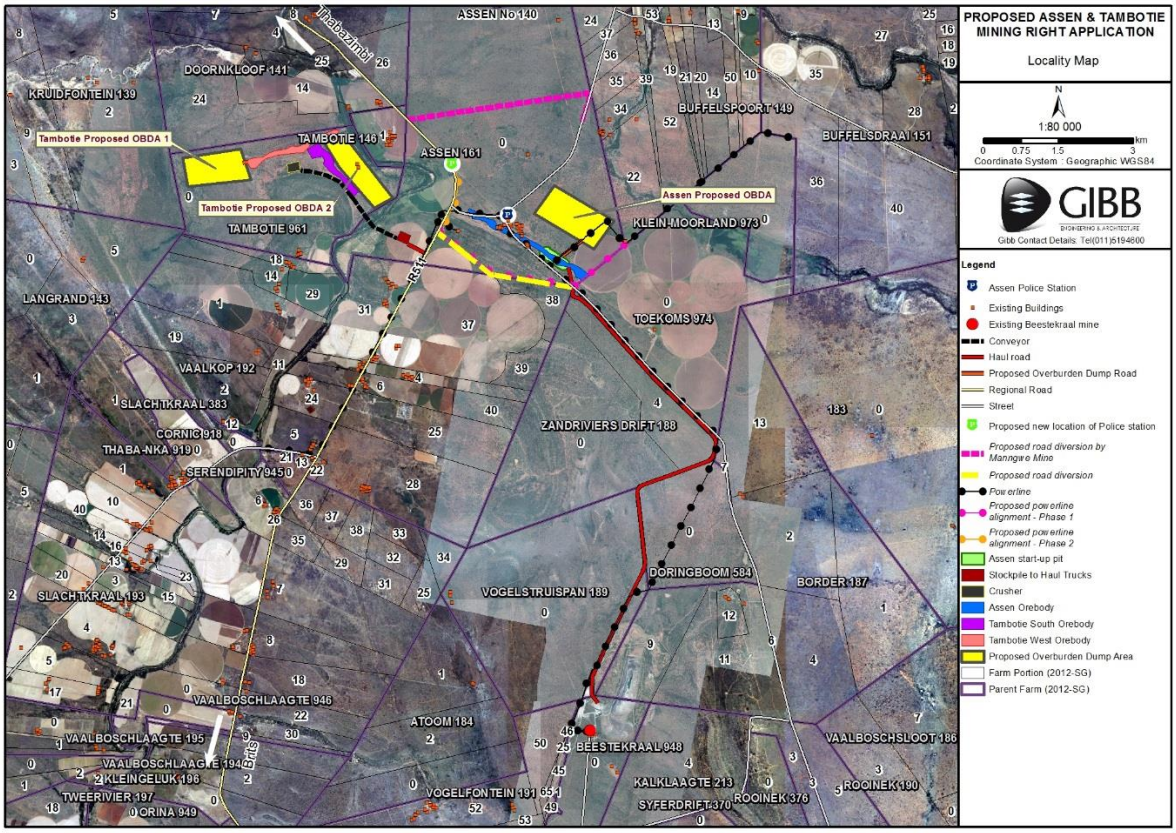


Figure 2: Locality Map of the proposed Assen / Tambotie Ore Bodies and associated infrastructure (2012)

Please refer to Appendix A of this report for all the maps relevant to this application.

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

i) Listed and specified activities

Table 1: Mining Activities, Listed Activities and Listing Notice

NAME OF ACTIVITY (All activities including activities 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.)	**Aerial extent of the Activity Ha or m²**	**LISTED ACTIVITY Mark with an X where applicable or affected.**	**APPLICABLE LISTING NOTICE (*GNR 983, GNR984 or GNR985)***
The development of facilities or infrastructure for the transmission and distribution of electricity – **(i) Outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 Kilovolts**; or	The proposed development will involve the relocation of an approximate 5km Eskom 33kV powerline in close proximity to the Assen ore body, situated outside the urban edge.	X	GNR 983, December 2014, Listed Activity 11 (i)

(ii) Inside urban areas or industrial complexes with a capacity of 275 or more Kilovolts.			
The development of – **(xii) infrastructure or structures with a physical footprint of 100 square metres or more;** **Where such development occurs –** **(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse.**	The proposed Tambotie Overburden Dump Area (OBDA) alternative 2 and the proposed conveyor belt system extending from the Tambotie ore body over the Crocodile River is situated within 32 metres from the Crocodile River.	X	GNR 983, December 2014, Listed Activity 12 (xii)(c)
The **infilling** or depositing of any material of **more than 5 cubic metres** into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock or more than 5 cubic metres from – **(i) a watercourse** (ii) the seashore; or	The proposed conveyor belt system extending from the Tambotie ore body over the Crocodile River will require infilling of more than 5 cubic metres into the River system for the establishment of the conveyor crossing infrastructure itself.	X	GNR 983, December 2014, Listed Activity 19 (i)
The development of – (i) A road for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 or 2010; or **(ii) A road with a reserve wider than 13.5 meters, or where no reserve exists where the road is wider than 8 meters;** But excluding- (a) Roads which are identified and included in activity 27 in Listing Notice 2 of 2014; or Roads where the entire road falls within an urban area.	13 ha in extent The haul roads associated with the proposed development will have a road width of 15m and be approximately 9km long.	X	GNR 983, December 2014, Listed Activity 24 (ii)
The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for – (i) the undertaking of a ,linear activity; or (ii) Maintenance purposes undertaken in accordance with a maintenance management plan.	200 ha in extent The aerial extent of the study area to be cleared of vegetation for the proposed establishment of the Assen / Tambotie limestone mining area and associated infrastructure will be approximately 200 ha.	**X**	GNR 984, December 2014, Listed Activity 15

Any activity including the operation of that activity which requires a mining right as contemplated in section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource, including activities for which an exemption has been issued in terms of section 206 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2008).	2658 Ha study area The proposed project is for the conversion of the Assen / Tambotie prospecting right to a mining right	X	GNR 984, December 2014, Listed Activity 17
Any activity including the operation of that activity associated with the primary processing of a mineral resource including winning, reduction, extraction, classifying, concentrating, crushing, screening and washing but excluding the smelting, beneficiation, refining, calcining or gasification of the mineral resource in which case activity 6 in the Notice applies	The limestone ore mined from the Assen ore body will be crushed at the existing PPC Beestekraal mine, whereas a primary crushing facility will be developed for processing the Tambotie limestone ore.	X	GNR 984, December 2014, Listed Activity 21

ii) Description of the activities to be undertaken

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

PROJECT DESCRIPTION

The proposed Assen / Tambotie limestone open cast mining project will be located on the farm Tambotie 961, Tambotie 146, Assen 161, Zandriviers Drift 188, Vogelstruispan 189, Vaalkop 192 and Beestekraal 948, situated within the greater Assen area, North West Province.

PPC Currently operates an opencast limestone mine and associated crushing plant facility under an existing mining right at the Beestekraal mine. The existing Beestekraal operation is located near the old farmsteads of Assen (approximately 52 km north of Brits) constituting a small farming community. The study area is situated in the Madibeng Local Municipality and furthermore forms part of the Bojanala District Municipality (BDM) of the North West Province.

The study area for the proposed Assen / Tambotie mining operations, is situated approximately 8km north (Assen ore body) and 11.5km north (Tambotie South and West ore body) respectively of the existing PPC Beestekraal mine. The study area is approximately 2658 ha in extent and the limestone mining will take place by means of an open cast mine. It is envisaged that the proposed Assen / Tambotie mine will mine approximately 650,000 tonnes/annum of limestone, where the limestone from the Assen ore body will then be transported to the existing Beestekraal mine for further crushing. Limestone ore from the Tambotie South and West ore body will undergo primary crushing on site prior to being transported via conveyor belt system over the Crocodile River onto a stockpile and then via haul trucks to the existing Beestekraal mine for further crushing.

The project activities assessed as part of this application, includes the following:

- Assen Ore Body;
- Assen Overburden Dump Area;
- Overburden Dump Road;
- Tambotie West and South Ore Bodies;
- Tambotie Overburden Dump Area Alternatives 1 & 2;
- Crusher Location;
- Conveyor;
- Stockpile;
- Haul Roads;
- Proposed Road Diversion;
- Proposed Road Diversion by Manngwe Mine;
- Proposed Powerline Re-Alignment for Phase 1 & 2; and
- The proposed potential location of the new Assen Police Station.

The proposed limestone mining will take place via the open cast mining method and the use of excavators and haul trucks to transport the ore to the existing Beestekraal crushing plant. The proposed life of mine for the Assen / Tambotie operations will be thirty (30) and twenty (20) years respectively (i.e. life of mine 50 years), with mining taking place to a maximum depth of fifty (53) meters below ground. Mining will start at the Assen ore body and then move to the Tambotie South and West ore bodies.

The open cast mining method will involve stripping usable soil and softer overburden material using a fleet of diesel trucks and shovels. The topsoil and subsoil that has been stripped will be transported to the predetermined storage areas outlined in the rehabilitation programme as set out in the Environmental Management Programme (EMPr). Harder overburden material will be drilled and blasted to break the rock, which will then be removed as waste rock and stored along with the soft overburden in the designated Overburden Dump Areas (OBDA). Once the overburden material has been removed, the limestone ore will be extracted by means of drilling and then hauled to the existing Beestekraal crushing plant. The ore will then undergo primary crushing, secondary crushing and lastly stacking of the product.

Due to the fact that the crushing facilities are already existing (PPC Beestekraal mine) in close proximity to the proposed Assen mining area, it is not deemed feasible to establish a separate crushing plant for this ore body. A primary crushing facility will however be established for the Tambotie South and West ore bodies, where the limestone ore from these ore bodies will undergo primary crushing on site prior to transportation via conveyor over the Crocodile River, and then via haul trucks to the existing PPC Beestekraal mine for further crushing. For the Tambotie ore bodies, two (2) site alternatives have been proposed for the location of the Tambotie Overburden Dump Areas (OBDA). Please refer to Figure 1 (2007 cadastral dataset) and Figure 2 (2012 cadastral dataset) above for the locality map of the proposed Assen / Tambotie mining right application.

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** **(i.e. Where in this document has it been explained how the development complies with and responds to the legislation and policy context)**	**HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT** **(E.g. In terms of the National Water Act:- Water Use Licences has/has not been applied for).**
National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA)	The National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended (NEMA) and EIA Regulations of 2014 (GNR 982, 983, 984 and 985), is the key national legislation underpinning environmental authorisations in South Africa. The Department of Mineral Resources (DMR) is the Competent Authority (CA) for mining-related applications in terms of NEMA. NEMA and associated regulations are directly relevant to this application.	The proposed development trigger listed activities in terms of the EIA Regulations of 2014 (as listed in Table 1 above).
Environmental Impact Assessment (EIA) Regulations, 2014 (As amended) (Government Notice No. 327, 325 and 324, 7 April 2017)	The EIA regulations describe the EIA process to be followed including the public participation process, and the listed activities that may have a harmful impact on the environment and must be assessed.	The proposed development trigger listed activities in terms of the EIA Regulations of 2014 (as listed in Table 1 above). As such, a Scoping & Environmental Impact Reporting (S&EIR) process is being undertaken for this project.
National Water Act,	This Act provides for the protection and	Due to the fact that the

1998 (Act No. 36 of 1998)	management of water resources. A Water Use License Application is made to authorise water use activities pertaining to the altering of the bed and banks of a watercourse and diverting the flow of water in a watercourse.	proposed conveyor belt system will extend over a watercourse and the need for dewatering activities at the pits, an application for a WUL will need to be submitted in terms of Section 21 (c), (i) and (j) of the National Water Act.
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	This Act makes provision for the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources; the fair and equitable sharing of benefits arising from bio prospecting involving indigenous biological resources in terms of the National Environmental Management Biodiversity Act (Act 10 of 2004). The implementation of this Act and associated provisions will lead to the protection of sensitive species.	The proposed development and associated S&EIR process will be undertaken in such a way to ensure effect is given to the NEM:BA where appropriate. An Ecological Impact Assessment has been undertaken for the proposed project and will be submitted along with the Final EIR to the DMR for decision making.
National Heritage Resources Act, 1999 (Act No. 25 of 1999)	The National Heritage Resources Act requires all developers (including mines) to undertake cultural heritage studies for any development exceeding 0.5 hectares in extent. It also provides guidelines for impact assessment studies to be undertaken where cultural resources may be disturbed by development activities. The Heritage Impact Assessment will require approval by the North West Provincial Heritage Resources Agency (NW PHRA) as part of the impact assessment process. The National Heritage Resources Act aims to introduce an integrated system for the management of South Africa's heritage resources. Further, the Act empowers civil society to nurture and conserve their heritage resources so that they can be passed on to future generations. The Act provides a framework for the management	A Heritage Impact Assessment has been undertaken for proposed project and will be submitted to NW PHRA for comment and decision making.

	of heritage resources in South Africa and to protect heritage resources of national significance. In order to meet these objectives, the Act introduces an integrated system that can allow for the identification, assessment and management of heritage resources in South Africa.	
National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)	Section 8 of the Act provides for the setting of national air quality standards, monitoring and management of air quality and emissions. Section 32 deals with dust control measures and provides for the Minister to prescribe measures for the control of dust in specified places or areas, either in general of by specified machinery or in specified instances the steps to be taken to prevent nuisance or other measures aimed at the control of dust. Section 21 of the NEMAQA makes provision for the listing of activities which result in atmospheric emissions, which must be licensed prior to commencement in accordance with Section 22 of the NEMAQA.	Since the proposed activities do not trigger any listed activities as per section 21 no Atmospheric Emissions Licence will be required.
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008).	This act provides for specific waste management measures, by regulating waste management in order to protect health and the ecological degradation and for securing ecological sustainable development; to provide for institutional, arrangements and planning matters, to provide fir national norms and standards for regulating the management of waste.	Waste management principles and provisions will be implemented for the project to ensure adherence to the specific NEM:WA outcomes.
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	In terms of section 6 of the Act, the Minister may prescribe control measures with which all land users have to comply. The control measure may relate to the regulating of the flow pattern of run-off water, the control of weeds and invader plants, and the restoration or reclamation of eroded land or land which is otherwise disturbed or denuded. This act will regulate construction activities to prevent the spreading of invasive species and to ensure successful rehabilitation of the receiving environment.	An Agricultural Impact Assessment has been undertaken for proposed project and will be submitted along with the Final EIR to DMR for decision making.
National Forests Act, 1998 (Act No. 84 of	The proposed project may result in the disturbance or damage to a tree protected	The proposed project may result in the

1998)	under the NFA.	disturbance or damage to a tree protected under the NFA.
National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)	The Protected Areas Act provides for the protection and conservation of ecologically viable areas representative of the country's biological diversity, its natural landscapes and seascapes.	The proposed routes both preferred and alternative routes runs through a non-statutory protected area.
Constitution of the Republic of South Africa	The constitution paved the way for the protection of the natural environment and heritage resources through the recognition of the rights to a safe and healthy environment.	The proposed development will be undertaken in line with the requirements of the South Africa Constitution.
National Road Traffic Act, 1996 (Act No. 93 of 1996)	All the requirements stipulated in the NRTA regarding traffic matters will be complied with during the construction, operation and decommissioning phases of the proposed project.	All the requirements stipulated in the NRTA regarding traffic matters will to be complied with during the construction, operation and decommissioning phases of the proposed project.
Provincial and Municipal by-laws	All provincial and municipal by-laws applicable to the study area will need to be complied with during the construction, operation and decommissioning phases of the proposed open cast mine development.	All provincial and municipal by-laws applicable to the study area will need to be complied with during the construction, operation and decommissioning phases of the proposed open cast mine development.
Occupational Health and Safety Act ,1993 (Act No. 85 of 1993)	Identify the hazards and evaluate the risks associated with such work constituting a hazard to the health of such employees.	The proposed development will ensure compliance is met with regards to the provision of this act.
Guideline on Alternatives	The Department must take into account all relevant factors, which may include, inter alia, any feasible and reasonable alternatives to the activity which are the subject of the application and any feasible and reasonable modifications or changes to the activity that may minimise harm to the environment	The proposed development and associated S&EIR process is undertaken in line with this guideline.

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 need and desirability for the project is supported by the need to convert the existing prospecting right for the area to a mining right due to the confirmed prevalence of the relevant limestone ore bodies. The proposed development of the Assen / Tambotie mining operations will result in a number of employment opportunities to undertake the various mining, blasting and drilling operations on site which will inevitably contribute to economic upliftment of local community and the greater region. The project will furthermore provide a secure and long term supply of limestone resource to the cement industry.

In addition, with the implementation of the project it will ultimately lead to the increase in Gross Domestic Product (GDP) for the country which resembles the country's economic wealth and makes it more lucrative overall for foreign investment.

g) Motivation for the preferred development footprint within the approved site including a full description of the process followed to reach the proposed development footprint within the approved 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.

For the proposed development, two site alternatives were considered for the location of the Overburden Dump Area (OBDA) associated with the Tambotie ore body. The Tambotie OBDA alternative 1 is situated west of the Tambotie West ore body (adjacent). The Tambotie OBDA alternative 2 is situated east of the Tambotie South ore body and in close proximity to the Crocodile River. The OBDA alternatives footprint constitutes no existing infrastructure on site. The footprint size (in ha) for each one of the OBDA site alternatives, is approximately 60ha each.

During the selection of the most suitable OBDA site alternative for Tambotie, the following principles were taken into consideration:

- The opinion of the public, ascertained through the public consultation process;
- Specialist's recommendations;
- Environmental Constraints;
- Minimal environmental impacts;
- Optimisation of existing infrastructure, such as access roads; and
- Economic cost-benefit analyses.

Tambotie OBDA 1 will have the smallest environmental impact on the receiving environmental conditions. This is supported by the fact that Tambotie OBDA 2 is situated in close proximity to the Crocodile river with a high risk of water quality contamination and degradation of riparian vegetation; as well as due to the fact that the visual exposure of OBDA 2 will be significantly higher as compared to OBDA 1 that is situated further away from the provincial roads extending in proximity to the study area.

As such, the EAP considers Tambotie OBDA 1 to be the preferred site alternative for the project as it allows for the various benefits associated with the project to be realised whilst at the same time having the smallest impact on the receiving environmental conditions.

i) Details of the development footprint alternatives considered

With reference to the site plan provided as Appendix A 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

Two site alternatives for the proposed OBDA associated with the Tambotie ore body were assessed as part of the EIR phase of the project. The Tambotie OBDA alternative 1 is situated west of the Tambotie West ore body (adjacent) and in close proximity to the Crocodile River. The Tambotie OBDA alternative 2 is situated east of the Tambotie South ore body. The OBDA alternatives footprint constitutes no existing infrastructure on site. The footprint size (in ha) for each one of the OBDA site alternatives, is approximately 60ha each.

During the selection of the most suitable OBDA site alternative for Tambotie, the following principles were taken into consideration:

- The opinion of the public, ascertained through the public consultation process;
- Specialist's recommendations;
- Environmental Constraints;
- Minimal environmental impacts;
- Optimisation of existing infrastructure, such as access roads; and
- Economic cost-benefit analyses.

b. The type of activity to be undertaken;

No alternatives were identified and assessed for the proposed activities to take place as part of the project, as this application is for the graduation of a prospecting right to a mining right.

c. The design or layout of the activity;

No design / layout alternatives have been identified and assessed for the proposed development.

d. The technology to be used in the activity;

No technology alternatives are applicable for the proposed development. Current open cast mining methods as employed by PPC within their current operations will be used.

e. The operational aspects of the activity; and

No operational alternatives have been identified for the proposed development.

f. The option of not implementing the activity.

This option assumes that the proposed development of the Assen / Tambotie Limestone open cast mine will not take place, and a conservative approach would ensure that the environment is

not impacted upon any more than is currently the case. It is important to state that this assessment is informed by the current environmental condition of the area. Should the decision-making Authority decline the application, the No-Go option will be followed and the status quo in terms of the environment will remain. As a result, the existing prospecting right for the area will not be graduated to a mining right and various employment opportunities (related to mining, blasting and drilling operations on site) will not be created and no contribution to economic upliftment of local people and the greater region will take place. The No-Go alternative furthermore implies that PPC's ability to provide a secure and long term supply of limestone resource to the cement industry will be affected where other means to achieve this goal will then need to be investigated, where possible.

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 reports relevant to the proposed development will be written in a way accessible to stakeholders in terms of language level, fog index and general coherence (note the DEA Guidelines – the public participation agency must be able to produce readable reports). All Interested and/or Affected Parties (I&APs) will be notified by means of undertaking the following activities:

- Windeed searches;
- Knock and drops of notification letters;
- Public Meeting (during the Scoping and EIR phase of the project);
- Placement of Site Notices in conspicuous places in the vicinity of the study area;
- Placement of Advertisements in the local newspaper;
- Meetings held with relevant associations such as the Farmers Union; and
- Using existing databases from existing mines in the area such as the PPC Ltd Beestekraal mine.

Please refer to Appendix E for the Comments and Response Report (CRR) constituting all comments received and responses provided on the Draft Scoping Report. In addition to this, it important to note that the Draft EIR (with associated specialist studies) and EMPr will be distributed to suitable public venues with comment sheets, which will be collected at the end of the public review and comment period. Registered I&APs will be informed of the location and contact details of the public venues.

Draft Environmental Impact Report (EIR):

A commenting period of at least 30 days (**Monday, 02 October 2017 to Wednesday, 01 November 2017 (inclusive))** will be provided for registered I&APs enabling them to comment on the Draft EIR. The availability of the Draft Reports will be announced by way of:

- Telephonic contact with I&APs (where necessary); and
- Personalised letters to all registered I&APs on the database;

The reports will be distributed for comment as follows:

Place	Address	Telephone
Atlanta Supermarket	Along R511 Brits, Thabazimbi	Rakesh Narsi 012 277 1341
Assen Police Station	Assen Beestekraal Brits 0255	Captain Willem Robbertse 012 252 8521
The DEIR is also available on the GIBB website at the following link: • https://projects.gibb.co.za/PPC_Assen_Tambotie_MRA • A CD copy is available upon request (please contact Mr Yonela Mngqibisa)		

Public review of the Draft Reports was done by the following methods:

- Written comment, including e-mail – a comment sheet asking I&APs to respond to particular questions will accompany the report;
- Verbal comment during stakeholder consultations; and
- Verbal comment during public meetings (if any).
- Various public participation products will be produced within the course of this EIA. This will include the following:
- Invitation letter to comment and be registered on the stakeholder database;
- Site Notices;
- Comments and Response Report (CRR);
- One (1) local newspaper advertisement was placed;
- Draft report notice letters to stakeholders and I&APs;
- Public meeting and Focus group meetings; and
- PDF versions of all documents for publishing on the GIBB project's website.

All comments received on the Draft EIR will be captured and responded to in the updated Comments and Response Report (CRR). Thereafter, the Draft EIR will be finalised into a Final EIR, which will be submitted to the Competent Authority (CA) for their review and decision making. All registered I&APs will be informed of the availability of the Final EIR and means by which to access the report. Any comments received on the Final EIR will be submitted directly to the CA for their review and consideration.

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 the applicant**	**Section and paragraph reference in this report where the issues and or response were incorporated.**
AFFECTED PARTIES					
Landowner/s					
Lawful occupier/s of the land					
Landowners or lawful occupiers on adjacent properties					
Paul Barnard	X	24 March 2017	Mr Paul Barnard enquired about where he can access the Scoping report on the proposed Assen and Tambotie Mining Right Application and also stated that the Portion 22 of Farm Buffelspoort 149 is his property and how will the proposed development affect his property.	Four hard copy Scoping reports was made available at the Atlanta Supermarket along the R511 road to Brits, and two copies of the report was made available at the Assen Police Station. However, alternatively the report can be accessed on the link provided in the notification letter sent out to all I&APs. Please find link below:	

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 the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
				https://projects.gibb.co.za/PPC_Assen_Tambotie_MRA Furthermore, on Tuesday 28 March 2017, a public meeting will be held at the Farmer's Association Hall at 16:00 to 18:00. It is strongly that effort is made to attend the public meeting for this project.	
Paul Barnard	X	25 March 2017	Comments on Scoping Report: PS Barnard: owner of portions 22, 34 & 35 of the farm buffelspoort149 JQ I am the owner of the abovementioned portions of the farm Buffelspoort and is direct adjacent to the application for mining rights for the PPC Assen mine. I am farming with game for breeding of exotic game like golden wildebeest, black impala and nyala. There are a lot of other game species on the farm and I do receive visitors from overseas to enjoy the bushveld nature and to hunt. I also do have a pivot where I plant lucern for the feeding of my game. This is my core business!		

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 the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
			I am of the opinion that the construction, development and operation of a lime stone open cast mine will impact significantly on the existing farming and tourism related activities, which have been carried out on the surrounding farming properties for decades. These impacts require in depth assessment and scrutiny to ensure that all the required information and data from specialist studies are collated and included in the EIA and EMP to allow the decision making authority to take an informed decision regarding the granting or refusal of the mining right as applied for. After review of the scoping report and taking into consideration the provisions of the Environmental Impact Assessment Regulations, 2010 with specific reference to regulation 28 of chapter 3, part 3 the following comments and concerns are submitted. 3.1. On the map that was attached to the	Please note that all potential impacts identified emanating from the proposed project will be further assessed during the EIR phase and the appropriate mitigation measures will be put in place and also incorporated in the EMPr during the EIR phase of the project. Please not that as indicated in the Draft Scoping Report, detailed specialist studies and Impact Assessment will be conducted during the EIR Phase of the project. 3.1. The Eskom powerlines indicated on the	

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 the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
			scoping report the Eskom electricity line that provide my house with electricity is not indicated. The existing Eskom power line which is indicated on the map is also incorrect. I am concerned about the Eskom line that will be aligned as we already do experience a lot of outages. Will the outages increase due to the bigger demand for electricity on the line? 3.2. The scoping report does not mention anything with regard to water and where water will be used. I also asked this at the PPP meeting and I was informed that they are not going to use water. How are they going to control dust if the mine is not going to use water? A lot of dust will be created due to the mining activities that will have a detrimental effect on the living conditions at my house as well to my visitors that will stay there. Note should also be taken of the fact that the excessive dust on the grass and trees will also have a detrimental effect on the animal on the	maps are based on data received from Eskom. We will investigate the additional lines you have stated during the EIR phase of the project and update our reports as required. 3.2. As per the Public Meeting minutes, PPC will not use Water for their mining activities. The WUL refers to the impact on water resources in terms of how the activities may impact on water resources, such as rivers where the Tambotie conveyer belt will cross. The main need for WUL is for the dewatering of the mining Pits for both Assen and Tambotie. Dust control measures will be addressed during the EIR Phase of the project.	

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 the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
			farm. Some of the game eats grass and others eat leaves from the trees and some do eat both. 3.3. The scoping report does not mention that explosives would be use for the mining activity. The report only mention that limestone ore extracted by drilling, blasting, loading and hauling. How are they going to control the blasting as this will again have a negative effect on my core farming (business) activity? Mining activities (blasting, hauling, processing and transportation) will generate high noise levels and this unwanted noise will contribute to significant higher ambient noise levels that will also impact on the game, farming activities and tourism industry. The game will be frightened every time that there will be an explosion. It may also result that some of the game will jump through or over the fence when they are grazing close to the fence when the explosion takes place.	3.3. As indicated on page 10 of the Draft Scoping Report, the open cast mining method will involve stripping usable soil and softer overburden material using a fleet of diesel trucks and shovels. The topsoil and subsoil that has been stripped will be transported to the predetermined storage areas outlined in the rehabilitation programme as set out in the Environmental Management Programme (EMPr). Harder overburden material will be drilled and blasted to break the rock, which will then be removed as waste rock and stored along with the soft overburden in the designated Overburden Dump Areas (OBDA). Once the overburden material has been removed, the limestone ore will be extracted by means of drilling and then hauled to the existing Beestekraal crushing plant. The ore will then undergo primary crushing, secondary crushing and lastly stacking of the product. A Noise Impact assessment will be	

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 the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
			How is the mine going to control this as I may suffer losses as a result of this?	conducted during the EIR phase of the project and will assess the potential impacts of blasting amongst others.	
			3.4. The draft scoping report also only refers to the typical bushveld and that there are acasia and combretum trees on the proposed land. The report does not mention that there are also lead wood (hardekool) and camel thorn (kameeldoring) trees on the proposed sight. Both these trees are endangered (protected) species and the Department of Conservation should be involved from the beginning.	3.4. As stated in page 8 of the Draft Scoping report, detailed specialist studies which also include Ecological Impact Assessment, and Heritage Impact Assessment will be conducted during the EIR Phase of the project. Should any protected trees be identified, the appropriate authorities will be consulted during the EIR phase.	
			3.5. Consultation Process: Interested and Affected Parties. 3.5.1. I was very disappointed when I find out of the meeting of 28 March 2017 but no correspondence or e-mail was addressed to me to inform me about the	3.5.1. As discussed earlier, you called on the 24 of March 2017 enquiring where you can access the report of the proposed Assesn and Tambotie Mining Right Application and also stated that the portion	

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 the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
			meeting. When I phoned your offices I was informed by Mr Mngqibisa that the document was too BIG to be send to me by e-mail!	22 of Buffelspoort is your property and how will the proposed development affect his property. Yonela from GIBB sent you an email, saying that four hard copy reports are available at Atlanta Supermarket along the R511 road, and two hard copies of reports are also available at the Assen SAPS Police Station. He also sent you a link where you can access the report online. You phoned the Office saying that you cannot download the documents from the link and requested that we email you the report. Yonela responded that the report is too big to be sent via email. Further to the phone discussion, you sent an email on at 12:33 PM, 24 March 2017 saying that you cannot download the document from the link provided and further said that you need more information to prepare for Public Meeting on the 28/03/2017. We tested the link sent to you and it was	

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 the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
			3.5.2. The Departments of DWAF should have been informed and invited related to water use, waste management, waste water management and release of treated water into the environment etc. 3.5.3. NWDREAD on the impact that the activity may have on agriculture related activities. 3.5.4. NDEAT on the impacts that the activity may have on Tourism activities in the area. 3.5.5. Eskom on the availability of electricity and the demand of the proposed development on an already overloaded electricity network. 3.6. I am aware that there is a communication tower in very close proximity to the proposed mining site;	working, and requested you to try and go to the link again, and sent you a 4 locality Maps of the proposed development. 3.5.2. The Department of Water and Sanitation was informed of the proposed project and a hard copy report was sent to the Department. As per the minutes of the public meeting, detailed specialist studies which also include, Wetland Delineation and Impact Assess, Air quality Impact Assessment, Agricultural Impact Assessment, Hydrogeological Impact Assessment, Noise Impact Assessment and Heritage Impact Assessment will be conducted during the EIR Phase of the project. 3.6 Comment Noted, this will be investigated during the EIR phase of the project.	

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 the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
			this information is not included in the draft scoping report. Has any consideration been given to this and are the owners informed and aware of the proposed mining activities. I know that it is on the property of PPC. A dish was erected on my farm to direct the signal from this tower to other users to the northern area where the signal was poor. 3.7. According to the draft scoping report no water will be used but I belief this is not a fact as dust must be controlled and the only way to do it is with water. I am also concerned about the fact that if necessary in the opencast mining activity underground water will be locked of. What will happen if it is one of the boreholes that are supplying me with water?	3.7. As per the Public Meeting minutes, PPC will not use Water for the mining activity itself. The WUL refers to the impact on water resources in terms of how the activities may impact on water resources, such as rivers where the Tambotie conveyer belt will cross. The main need for WUL is for the dewatering of the mining pits for both Assen and Tambotie. Dust control measures will be addressed during the EIR Phase of the project. A geohydrological study will be conducted during the EIR phase of the project and will assess the impacts on groundwater.	

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 the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
			3.8. The proposed mining activity will also devaluate my property and I will in future not be able to sell the farm for the value that I have bought it. Conclusion: The purpose of the scoping report is to ensure that the applicant furnish the competent authority with sufficient and comprehensive data regarding potential impacts on the receiving environment and to include the comments and concerns of interested and effected parties and I believe that my concerns as listed in this letter are valid and trust that the issues will be adequately and comprehensively dealt with in the finalization of the scoping report the EIA and EMP.	3.8. Comment noted. Please substantiate your statement, as there are currently mining activities occurring within the greater area such as the PPC Beestekraal mine as well as the Manngwe mine. As stated in page 8 of the Draft Scoping report, detailed specialist studies and comment and concerns received from I&APs will be incorporated in our Comment and Response Report, which will be provided to the Department of Mineral Resources along with the Final Scoping Report for their Decision making.	
Municipal councillor					
Municipality					
Organs of state (Responsible for					

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 the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e					
SAHRA – Natasha Higgitt	X	02 May 2017	It is noted that the Scoping Report states that a Heritage Impact Assessment (HIA) will be conducted during the EIA phase. Interim Comment: A Heritage Impact Assessment (HIA) must be conducted as part of the EIA process. The HIA must be submitted to SAHRA with the relevant environmental reports during the relevant EIA Public Review period so that comments from SAHRA can be incorporated into the final reports. The pending HIA must assess all types of heritage resources as defined in the National Heritage Resources Act, Act 25 of 1999 (NHRA) and must comply with section 38(3) of the NHRA. Further comments will be issued upon receipt of the above report. Should you have any further queries,	Thank you for your comment provided on the proposed Assen and Tambotie Mining Right Application. We have captured your comment with regards to the development in our Comment and Response Report, which will be provided to the Department of Mineral Resources along with the Final Scoping Report for their Decision making. Please note that as indicated in the Draft Scoping Report, a Heritage Impact Assessment will be conducted during the EIR Phase. The HIA will be attached to the Environmental Report with relevant EIA Public Review and made available to SAHRA for comments.	

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 the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
			please contact the designated official using the case number quoted above in the case header.		
Communities					
Dept. Land Affairs					
Traditional Leaders					
Dept. Environmental Affairs					
Other Competent Authorities affected					
<u>OTHER AFFECTED PARTIES</u>					
SEPUPUTLE CPA		02 May 2017	Morning Sir / Madam We would like to register as interested and affected party in the process of your mining activities around Assen in the Madibeng Municipality. We are SEPUPUTLE CPA and have	Thank you for your comment on the Assen and Tambotie Mining Right Application. We have captured your concerns with regards to the development in our Comment and Response Report, which will be provided to the Department of Mineral Resources along with the Final Scoping Report for their	

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 the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
		claimed that land in the area. We hope that our request will reach your favourable consideration.	Decision making. Please note that we have registered SEPUPUTLE CPA on our database and will be notified of any further communication on the project. Please note that we have not recorded any land claims on the properties in question for this application.	
INTERESTED PARTIES				

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

a. Baseline Environment

Topography

The topography of the study area and immediate vicinity is primary very flat with an average elevation of approximately 970 metres above mean sea-level (mamsl). The Assen / Tambotie ore bodies are situated north of the topographic high areas, where elevations are between 1000 and 1100 mamsl. Apart from the hill situated south of the two Tambotie ore bodies, there are no distinctive ridges, rocky outcrops, steep gradients, gorges or ravines within the study area. Large mountains, escarpment and valleys are prominent to the north of the study area, situated approximately 2-3 km away.

Climate

i. Regional Rainfall

The study area is situated within the summer rainfall region, with the rainy season usually occurring between the months of October to March. The mean annual precipitation (MAP) is approximately 561mm, with the mean annual evaporation (MAE) for the study area being measured as approximately 2061mm per annum.

Please refer below to Table 2 for the Mean Annual Climatic Data for the study area.

Table 2: Mean Annual Climatic Data for Study Area

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
MAP (mm)	112	82	68	31	8	4	2	3	12	52	81	105	561
MAE (mm)	228	195	190	149	123	97	105	140	185	215	211	224	2061

ii. Temperature

Temperature statistics available for the town of Brits (situated approximately 52km south of the study area) was used as an indication of temperatures for the study area. The monthly distribution of average daily maximum temperatures show that the average midday temperatures for Brits range from 19.8˚C in June to 29.3˚C in January. The region is the coldest during the month of July when the mercury levels drop to 2.1˚C on average during the night.

Geology and Soils

Based on the 1:250 000 Geological Maps (2523 Rustenburg) produced for the greater area, the general study area is underlain by the Dolomitic formations of the Malmani Subgroup, of the Chuniespoort Group. This Malmani Subgroup fragment along the Crocodile River north of Brits, is known as the Assen Formation. The ore-grade limestone at the study area, occurs within the lower layers of the Eccles Formation (VA1) and its base is formed by the Lyttleton Formation (VA2).

All the rock formations in the Crocodile River Fragment have been subjected to deformation due to the high temperature and pressures during the intrusion of the Rashoop Granites to the south. These dolomitic rocks tend to suffer more ‘plastic’ deformation than other more competent dolomitic rocks, and typically will form a ‘box’ type fold around a more competent and less ‘plastic’ rock mass.

The Assen Formation around the study area forms part of an anticlinal structure with a north-west strike direction, while the northern and southern limbs dip at an angle of approximately 35 degrees. The Chert-rich dolomite (Va1), forms the flat topographic area towards the Assen deposit and to the south of the Tambotie South deposit, while the chert-free dolomites of (Va2 or Lyttelton Fm.) lies just below the small ridge situated directly south of the site. The ridge itself is made up out of the harder chert – rich dolomites of the Monte-Carlo (Va3). Syenite intrusion at the Assen deposit site has furthermore been identified, which has not been mapped at surface, but is expected to be approximately 20m wide and strike approximately NW-SE and extend approximately parallel to the Lyttleton Formation located south of the proposed pit area.

Please refer below to Figure 3 and 4 below for the regional geology related to the study area.

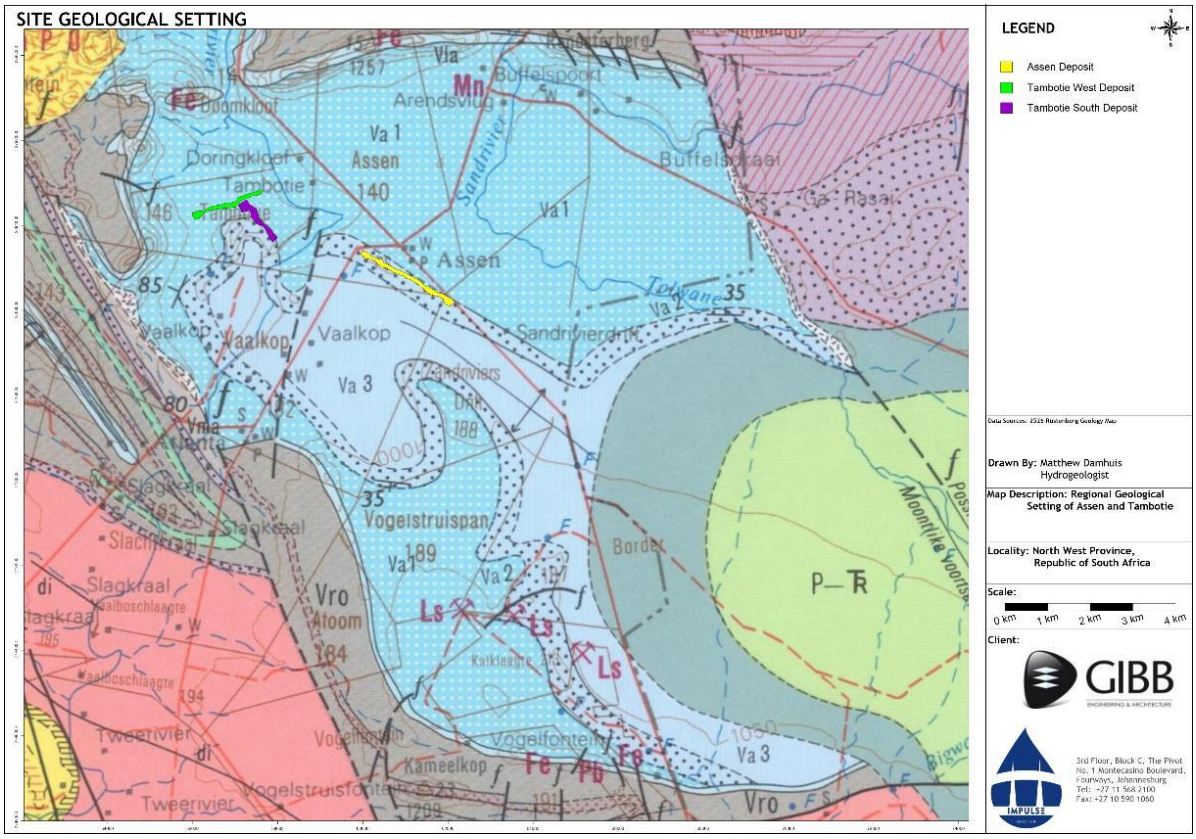


Figure 3: Site Geological Setting

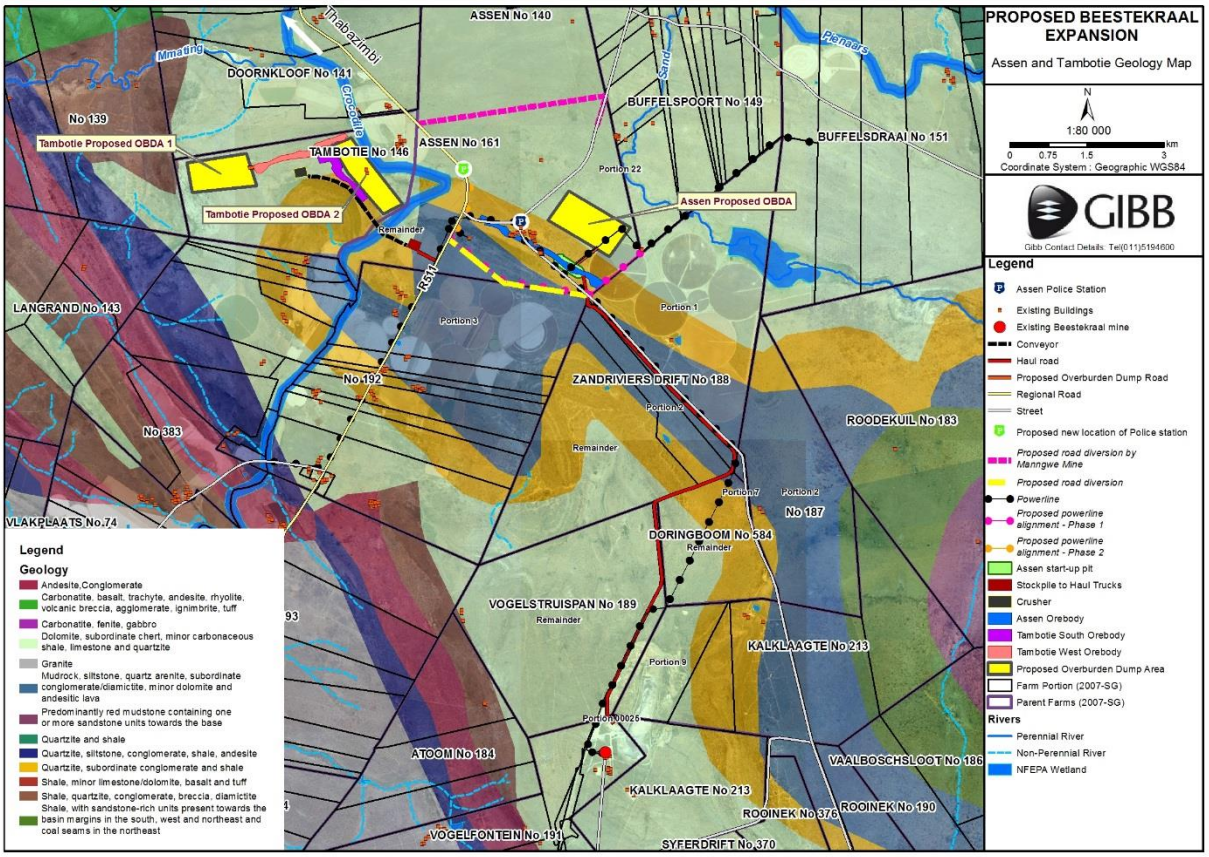


Figure 4: Geological Map of the study area

Hydrology

i. Watercourses throughout the study area

A detailed Ecological Impact Assessment was undertaken by SATIVA Travel and Environmental Consultants (Pty) Ltd (SATIVA) in November 2016. The only watercourse within the study area is the Crocodile River. The project may potentially impact on the river in the area of access to the Tambotie ore bodies, in the area of the Tambotie West eastern boundary, in the area of the proposed Tambotie OBDA2 site alternative as well as where the conveyor system is proposed to cross over the river south of the Tambotie ore body. In addition, the closest prominent, perennial rivers to the study area include the Motlhabe River and the Tolwane (Sand) River. The Crocodile River flows approximately 220m east of the Tambotie West ore body and approximately 600m south-east of the Tambotie South ore body.

The Motlhabe River is situated outside the study area at an approximate distance of 1.6km north of the Tambotie ore bodies and furthermore constitute no significance to the overall study. The Crocodile River flows in a northerly direction and eventually ties into the Limpopo River. The Pienaars River, which is north of the study area flows into the Crocodile River, while the Tolwane River is a tributary of the Pienaars River (Figure 5). There are **no natural or artificial wetland features** found throughout the study area and furthermore no watercourse features situated within the demarcated footprint areas of the ore bodies (approximate 200 ha footprint development). The proposed conveyor belt system envisaged to transport limestone ore from the Tambotie ore bodies to the stockpile area, will extend over the Crocodile River to the south of the ore bodies. The Crocodile River is therefore situated within the study area and proposed servitude area of the conveyor belt system (Figure 6).

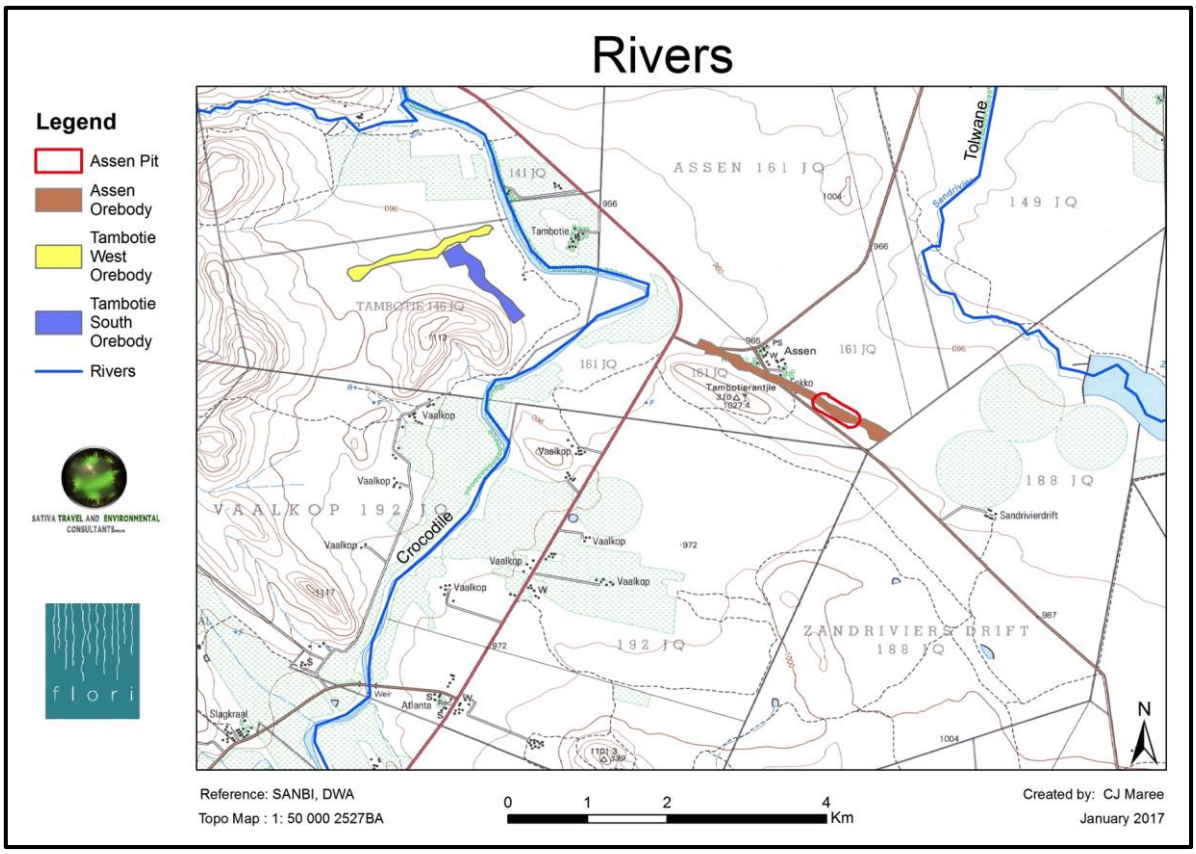


Figure 5: Topographical representation of Rivers in proximity to the study area

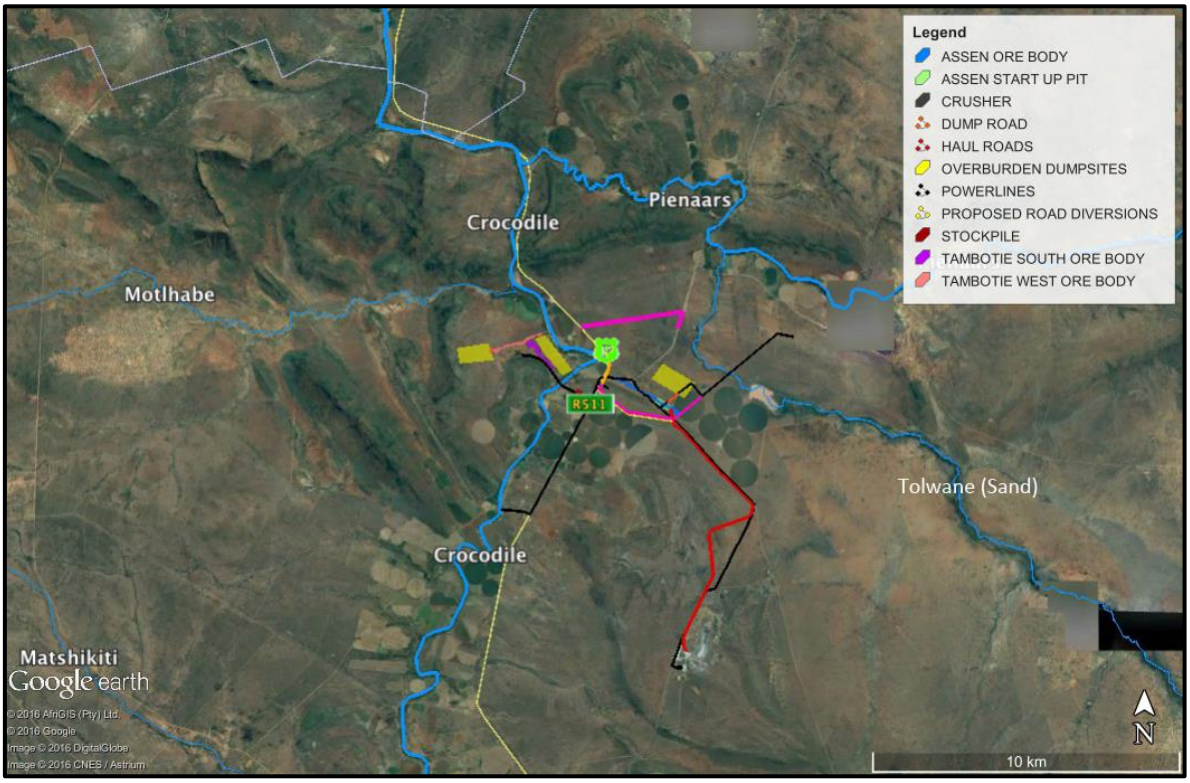


Figure 6: Rivers in the region of the study area

Water Management Areas:

The study area is situated within the Crocodile (West) & Marico Water Management Area (WMA). Furthermore, the study area falls within the jurisdiction of the Limpopo – North West Catchment Management Authority (CMA).

Quaternary Drainage Areas:

The study area extends over two wetland ecoregions namely Central Bushveld Group 2 and Central Bushveld Group 3. Furthermore, the study area is situated within the quaternary drainage areas of A24A and A23K. Please refer to Figure 7 below.

National Water Act, 1998 (Act No 36 of 1998):

The Tambotie South ore body an OBDA alternative 2 are both situated within 500m of the Crocodile River. The proposed conveyor system will also extend over the Crocodile River south of the Tambotie South and West ore bodies. Furthermore, dewatering of the pits will need to be undertaken during the operational phase of the project.

As such, it is envisaged that the project will require a Water Use Licence in terms of Section 21 (c), (i) and (j) of the National Water Act, 1998 (Act No. 36 of 1998). Please refer below to Table 3 for the potentially triggered water uses with regards to the proposed development.

Table 3: Triggered Water Uses for the Project

Section 21 of NWA	Activity
(c)	Impeding or diverting the flow of water in a watercourse
(i)	Altering the bed, banks, course or characteristics of a watercourse
(j)	Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people

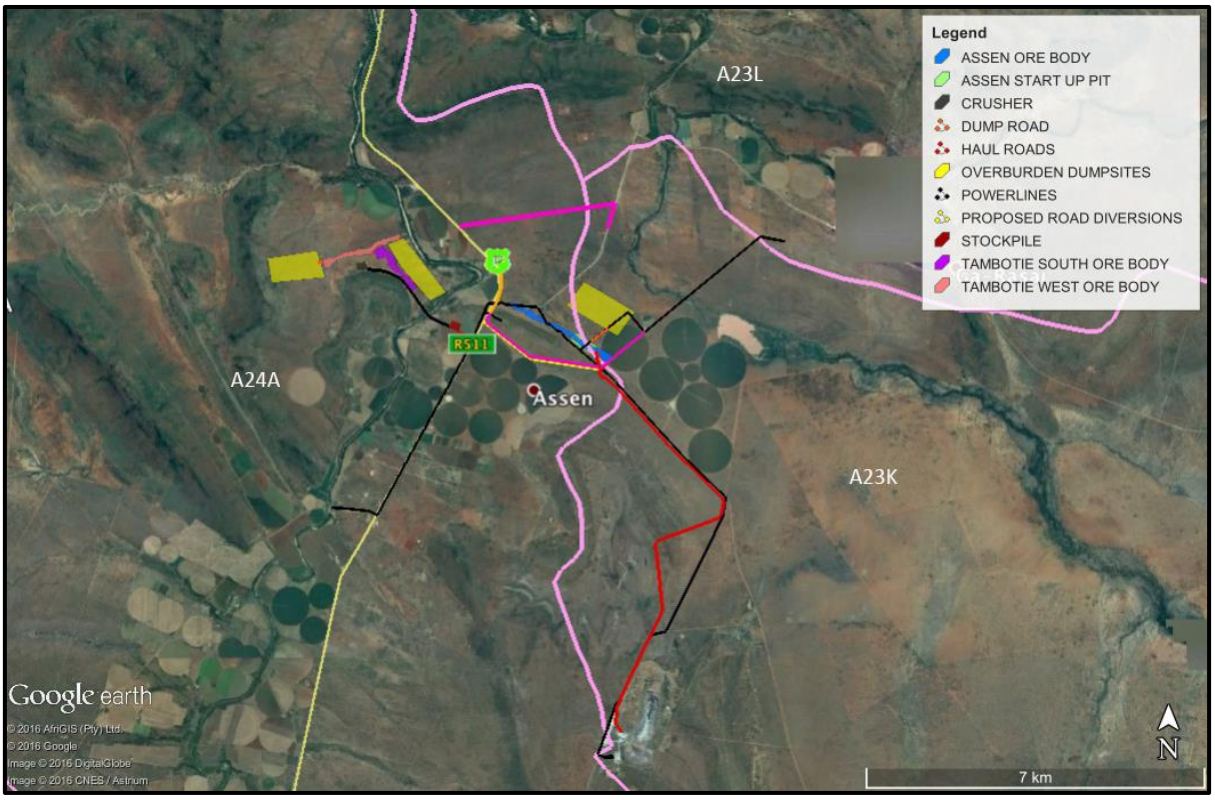


Figure 7: Quaternary Drainage Areas relevant to the proposed development

Air Quality

An Air Quality Impact Assessment was undertaken by EScience Associated (Pty) Ltd in December 2016. The results from the assessment illustrate that the predicted ambient concentrations of PM_{10} for the proposed haul roads will have exceedances of the National Ambient Air Quality standards (NAAQs). These exceedances are limited to in and around the haul roads and thus have an insignificant bearing insofar as environmental receptors are concerned. Furthermore, the predicted ambient concentrations of PM_{25} also show exceedances of the NAAQs, resulting from the haul roads. These exceedances are also limited to in and around the haul roads and thus have an insignificant bearing insofar as environmental receptors are concerned. With the exception of the haul road areas, the predicted cumulative ambient concentrations of PM are well within the NAAQS.

In addition to this, the surrounding land use and the fact that the greater area is already exposed to mining activities, it is envisaged that the project will alter the ambient dust levels during its construction and operational phases due to the vehicles hauling the mined limestone resource from the ore body to the existing Beestekraal mine for further crushing. Vehicles travelling on exposed surfaces, earthworks as well as wind are the main generators of dust. The nuisance and aesthetic impacts associated with the dust generation during construction and operation should be minimal if mitigating measures are implemented effectively.

Dust generation off the earth's surface is generally regarded as a nuisance rather than a health or environmental hazard. On a large scale dust will impair atmospheric visibility, however, in the context of the proposed activity, the impact of dust production on air quality should be minimal taking into account that effective dust suppression techniques that are available and has been incorporated as part of the EMPr.

Ecological

A detailed Ecological Impact Assessment was undertaken by SATIVA in November 2016. Please refer below for a summary of the key findings relating to prevalent fauna and flora conditions throughout the study area.

i. Flora

South Africa is divided up into nine major Biomes. The study area and the surrounding region fall within the Savanna Biome, which is also known as the Bushveld Biome (Figure 9). Savanna vegetation types tend to have a mix of a lower grassy layer, middle shrub layer and an upper woody layer. The mix and ratio of the three layers varies from veldtype to veldtype within the Savanna Biome. The Savanna Biome is then further subdivided into six bioregions, namely, Central Bushveld; Mopane; Lowveld; Sub-Escarpment Savanna; Eastern Kalahari Bushveld; and Kalahari Duneveld. The study area is situated within the Central Bushveld Bioregion.

The dominant veldtypes (vegetation types) of the region include the Western Sandy Bushveld, Springbokvlakte Thornveld and Madikwe Dolomite Bushveld (Figure 10 & 11). The Tambotie West, south and Assen ore bodies, are all situated within the Western Sandy Bushveld region, however the Tambotie South ore body is situated very close to the Madikwe Dolomite Bushveld region. The Madikwe Dolomite Bushveld is confined to the ridges and mountainous areas of the region.

Springbokvlakte Thornveld is characterised by open to dense bushveld dominated by thorn trees of Acacia species or shrubby grassland with a very low shrub layer. The topography is typically flat to slightly undulating plains. Although red-yellow freely draining soils occur the soils of the veldtype are typically heavy turf and clayey soils. Western Sandy Bushveld varies from tall open woodland to low woodland, with broad-leaved as well as microphyllous (fine-leaved or compound leaved) tree species. Dominant species within this veldtype include *Acacia erubescens* (Blue thorn) in flat areas, *Combretum apiculatum* (Red bushwillow) in shallow soils of gravelly upland sites and *Terminalia sericea* (Silver clusterleaf) in deep sands throughout slightly undulating plains.

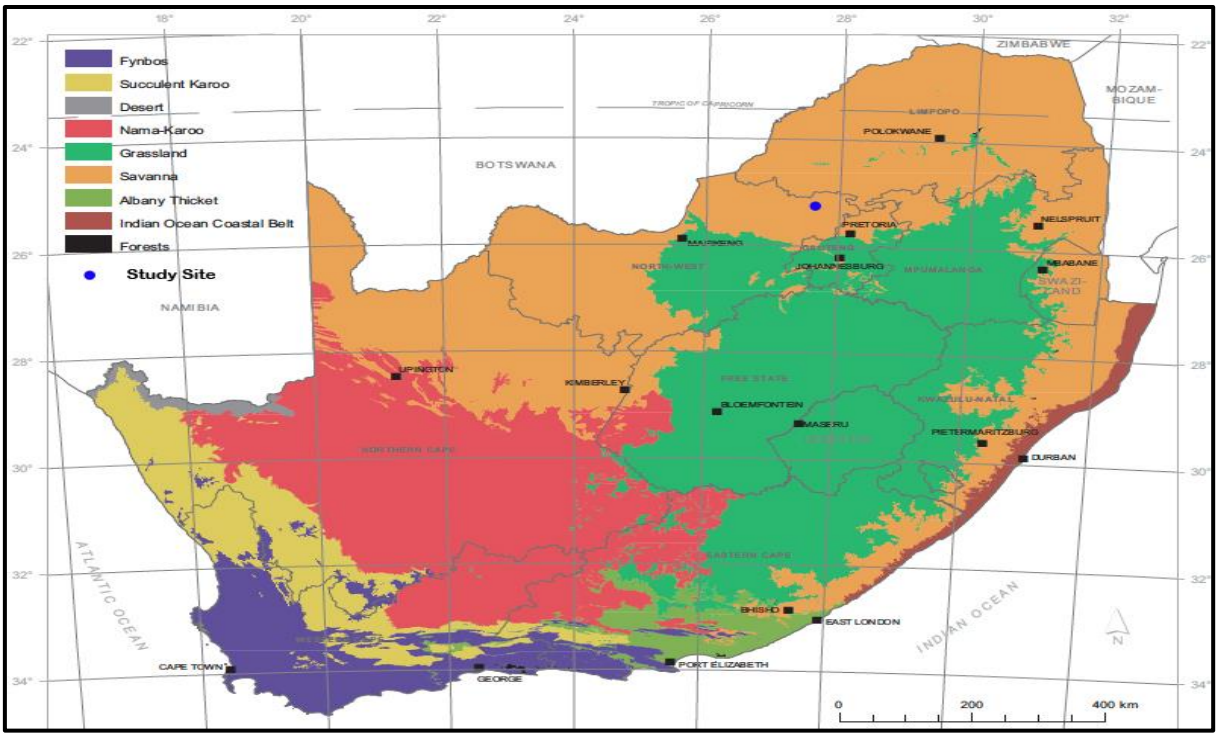


Figure 8: Biomes of South Africa

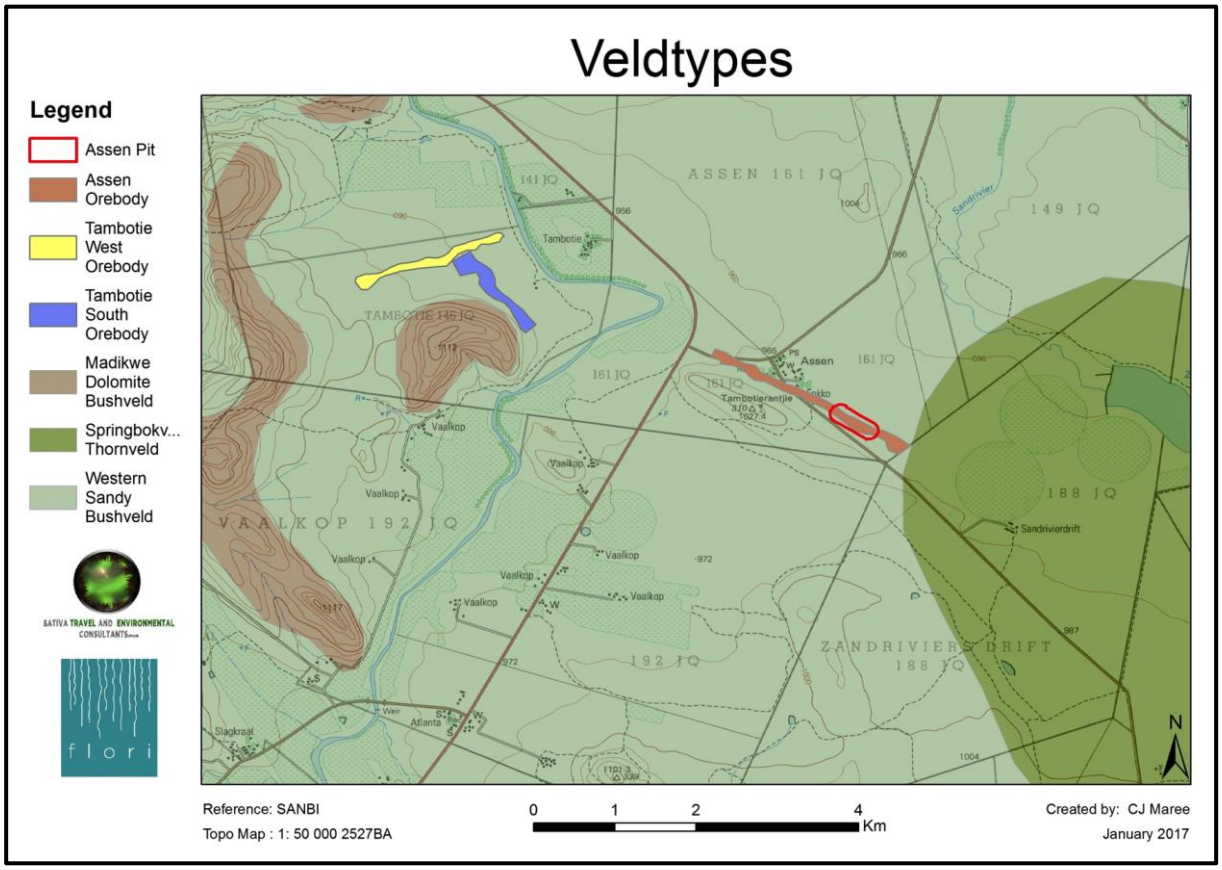


Figure 9: Veldtypes of the Study Area

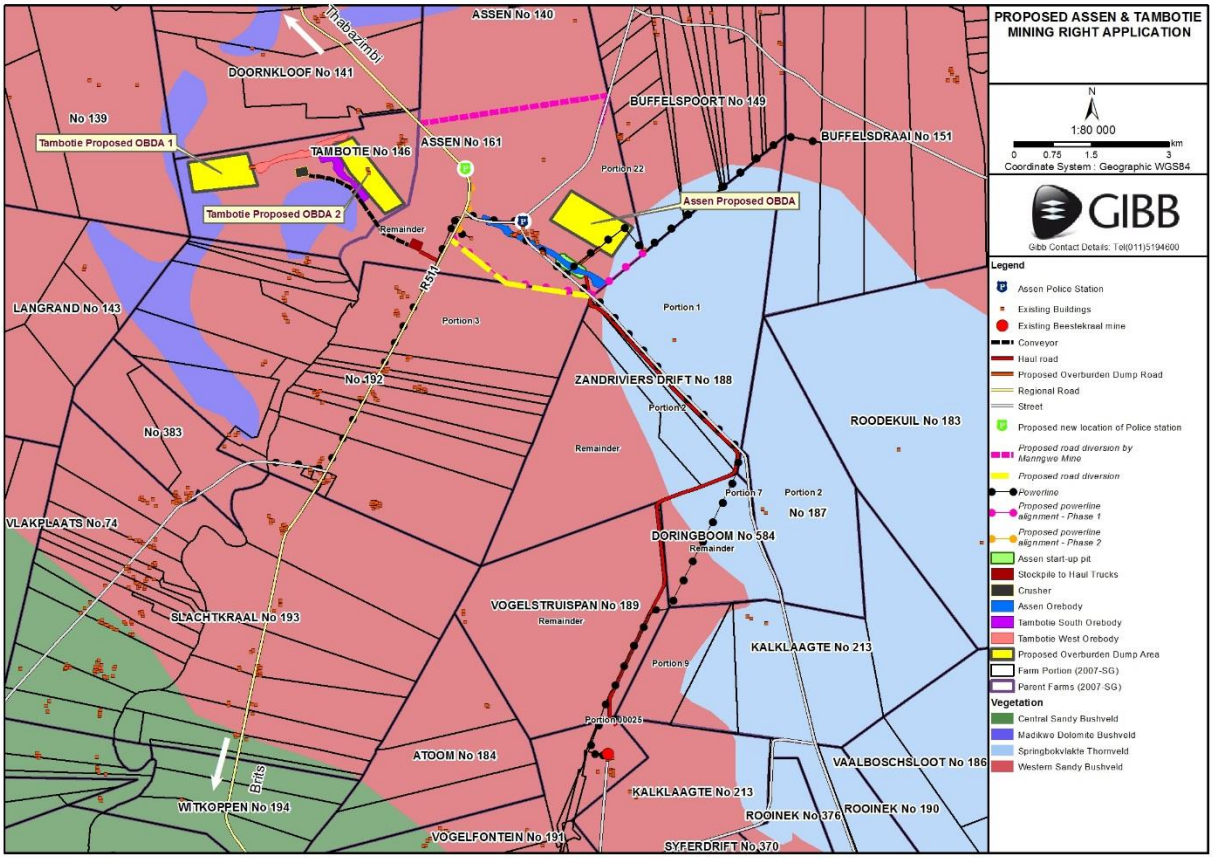


Figure 10: Vegetation Cover Map of the Study Area

ii. Fauna

The Tambotie orebodies are situated within private game farms. Therefore, a number of large mammals and other animals are present on the properties. Large mammals seen during the various field investigations include buffalo, blesbok, common duiker, giraffe, kudu, roan antelope, impala, warthog and velvet monkey, to name but a few. Other large animals seen were ostrich.

While **no red data** species were observed during the site investigation, the habitat presented in the study area is ideal for many of the species listed in Table 4 below, to occur. Great care should therefore be taken to avoid impacting on any of priority species, should they be encountered during construction and/ or operational activities on site. Furthermore, the habitat of the area also indicates that a number of snake species (some of which may be poisonous) may be encountered on site.

Table 4: Priority Faunal Species likely to occur in the area

Species	Common Name	Red Data status	Preferred Habitat	Habitat Restrictions	Present in Study area
Frogs					
Pyxicephalus adspersus	Giant bullfrog	Threatened	Grassland; savannah	Temporary floodplains; pans	Likely
Mammals					
Atelerix frontalis	SA hedgehog	Near Threatened	Most, broad	broad	Likely
Manis temmincki	Pangolin (Scaly anteater)	Vulnerable	Grassland, savannah	Woody; savannah; ants; termites	Possible
	Honey badger (Ratel)	Near threatened	Most, broad	Broad	Possibly
Cloeotis percivali	Short-eared trident bat	Critically endangered	Savannah	Caves and subterranean habitat	Not likely
Pipistrellus rusticus	Rusty bat	Near threatened	Most, broad	Woody savannah, large trees	Not likely
Snakes					
Python natalensis	Southern African python	Vulnerable	Ridges, wetlands	Rocky areas; open water	Likely

Socio-Economic Environment

i. Demographics

According to Stats SA, the Madibeng Local Municipality is located in the Bojanala Platinum District Municipality within the North West Province, situated between the Magaliesberg and the Witwatersrand mountain range.

The Municipality is demarcated into 31 wards of which 10 fall in the urban areas (Brits, Hartbeespoort and Skeerpoort) and 21 in the rural areas and villages. It includes approximately 43 villages and 9 000 farm areas. Madibeng is centrally situated (approximately 50km from Pretoria, 55 km from Johannesburg and 60km from Rustenburg) and is easily accessible with various road networks, amongst others the N4 toll road, which is links from various directions through Madibeng to Mmabatho, as well as a railway line and airport for light aircraft.

Population

The Local Municipality of Madibeng has a total population of 477 381, making it the second most populous municipality in the Bojanala District Municipality after Rustenburg. It is highly rural, with 57% of its population residing in rural areas (tribal or traditional areas), about 28% residing in urban areas and about 15% residing in farming areas. Black Africans are the majority, with an 89% share of the Madibeng Municipality's population. The most commonly spoken language is Setswana.

More than half of the population is male (53%), with 47% constituting females. At age 85 and older, there were more than twice as many women as men. People under 20 years of age made up over a quarter of the population (33.5%), and people aged 65 and older made up 5% of the population.

Municipality	**Total Area of Municipality**	**Total Area of Settlements**	**Area of Settlements as % of Municipal Area**
Madibeng Local Municipality	3.839 km^2	63 639 ha	5%

Socio-Economic status

Madibeng prides itself on a number of economic activities which play a significant role in the growth of the province and country as a whole, and which include agriculture, mining, tourism and manufacturing. Mining is presently predominant with Madibeng being the world's third largest chrome producer, and includes the richest Platinum Group Metals Reserve (situated on the Merensky Reef). Manufacturing is also a dominant sector with a wide variety of industries situated in the various industrial areas.

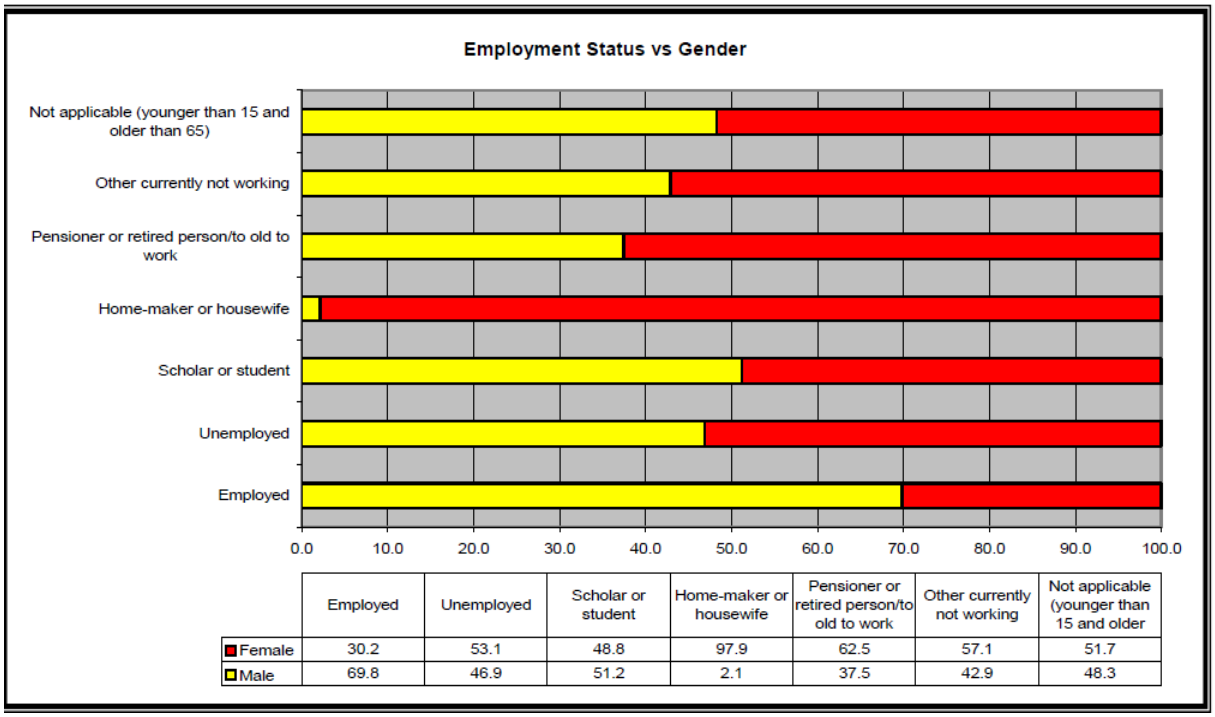
Tourism is one of the strong contenders, if well explored in the area. The possible establishment of the tourism belt is being researched for economic expansion. The advantage of rail and road infrastructure spanning in all lucrative destinations will begin to bear necessary fruit for the prosperity of the people of Madibeng.

Unemployment is still a serious concern in the Bojanala District. According to the 2007-2011 BDM Integrated Development Plan (IDP) the total number of unemployed persons in the district

increased over the period 1996 to 2003 (from 140000 to 217000) and the unemployment rate has stabilized and decreased slightly from 2002 onwards.

The municipality is characterised by high levels of unemployment. In Madibeng, the unemployment rate for those aged 15 to 24 is 38.2%, which is almost 10% more than the overall unemployment rate.

The information depicted in Figure 11 indicates that nearly 70% of the total employed population consists of males, with only 30% females. These figures also clearly indicate that 53% of the total unemployed population is represented by the female population in the district



	Employed	Unemployed	Scholar or student	Home-maker or housewife	Pensioner or retired person/to old to work	Other currently not working	Not applicable (younger than 15 and older
Female	30.2	53.1	48.8	97.9	62.5	57.1	51.7
Male	69.8	46.9	51.2	2.1	37.5	42.9	48.3

Figure 11: Employment status vs Gender (BDM IDP 2007-2011)

Education

The education status of the population older than 20 years of age as depicted in the figure below indicates that the district labour market is characterized by low skills levels. As much as 15.1% of the population older than 20 years have not received any form of schooling and a further 19.7% only some primary education. These figures imply that nearly 35% of the total adult population can be regarded as functionally illiterate. Conversely, only 20.1% of the adult population has completed their high school education and only 5.5% has obtained some form of tertiary education.

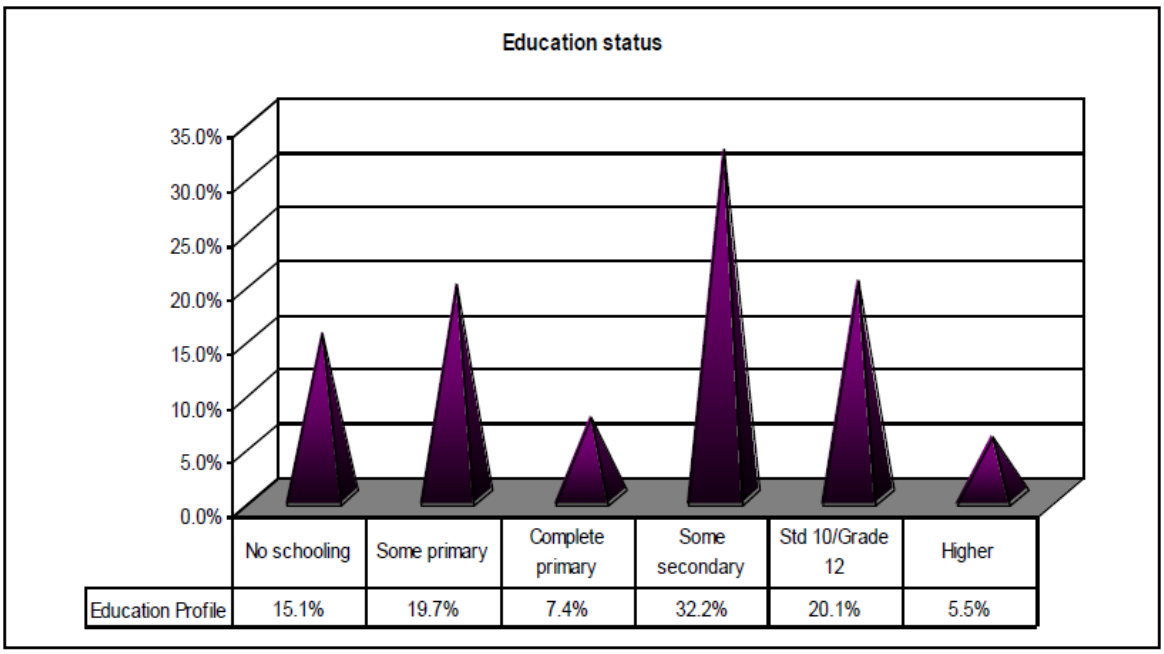


Figure 12: Education status of the Madibeng District Municipality population

Households Income

There are approximately 84,239 household, 20,483 agricultural households with an average household size of 3.3 individuals. Only 30.9 % of households have access to piped water inside dwellings and only 84.5 % of households have access to electricity for lighting

Economic Status

According to the information from Stats SA (2011), the Madibeng District Municipality comprise 30.4% unemployment rate, with 38.2% of this total constituting youth unemployment

Heritage Resources

Heritage sites have special attributes which contribute to the cultural identify of a local population and of humanity as a whole. Heritage sites may be related to religious and cosmological beliefs, constitute a source of aesthetic inspiration, can provide wildlife sanctuaries and form the basis of important local traditions.

The study area is situated within the North West Province of South Africa which boasts a rich traditional homeland of contemporary Western Sotho-Tswana including Hurutshe, Kwena and Kgatla. Previous archaeological and heritage studies in the region indicate that the area constitute a high pre-historic and heritage significance. The region is regarded as a cultural landscape where palaeontological; Stone Age, Iron Age and Historical period sites contribute the bulk of the cultural heritage of the region itself. Stone Age sites are general identifiable by stone artefacts found scattered on the ground surface, as deposits in caves and rock shelters as well as in eroded gully or river sections. Archaeological sites recorded in the project region confirms the existence of Stone Age sites that conform to the generic SA periodization split into the Early Stone Age (ESA) (2.5 million years ago to 250 000 years ago), the Middle Stone Age (MSA) (250 000 years ago to 22 000 years ago) and the Late Stone Age (LSA) (22 000 years ago to 300 years ago). Stone Age sites in the region are also associated with rock painting sites. Cave sites also exist on the landscape south-west of the project area.

A detailed Heritage Impact Assessment (HIA) was undertaken by SATIVA in November 2016. From the assessment is was determined that one (1) stone walled LIA site was situated in close proximity to the proposed haul road. It is important to note that the recommendation of the specialist was proactively taken into account and the haul road was subsequently moved further east in order to avoid impacting on this heritage resource (as denoted by the curve in the haul road once it enters Portion 2 of the Farm Zandriviers drift 188 (2007 cadastral data set)). In addition to this, seven (7) buildings and infrastructure older than 60 years were identified within the study area. It is important to note that these resources are considered protected in terms of Section 34 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999). Demolition permits may be required from SAHRA once the mining operations reach these buildings, which is envisaged to only be after the first 12 – 15 years of mining.

Furthermore, it is important to understand that some archaeological sites may be uncovered during the earth moving activities associated with the project. Should this occur, then the earth moving activities will need to be ceased immediately and the findings reported to the Competent Authority.

All recommendations from the HIA have been taken into account and incorporated into the EMPr effective implementation. Please refer to Appendix F for the detailed HIA study.

Ambient Noise

A detailed Noise Impact Assessment was undertaken by Airshed in December 2016. The study illustrates that the expected noise levels during the day (06:00 – 22:00) resulting from the mining operations will not exceed the day-time guideline of 55 dBA at receivers. Furthermore, it was calculated that the ambient noise elevation criteria for human receptors will only be exceeded within approximately 200m from areas of activity. In conclusion, no fatal flaws were identified for the implementation of the development with either one of the alternatives. All specialist mitigation measures and recommendations have been incorporated into the EMPr.

Visual Environment

A level 3 Visual Impact Assessment (VIA) was undertaken by GIBB in November 2016. The study illustrates that scenic value can be described as the reaction to the environmental aesthetics as perceived by an individual or a group and can therefore be subjective. In terms of surrounding landscape, the study area is regarded to be of a high visual quality with the natural vegetation and ridges next to the Assen and Tambotie ore body sites being the greatest resources. The small farmstead on farm Assen is the nearest residential dwelling in a 5km radius from the Assen / Tambotie study area. It is expected that the farmsteads at Assen will only have visual exposure to the Assen OBDA situated approximately 500m away. Tambotie OBDA1 and 2 are situated approximately 5.5km and 2.2km west from the farmsteads at Assen respectively, and it is expected that the topography and existing dense vegetation throughout the study area will screen the visibility to these sites.

From the VIA undertaken, no fatal flaws were identified with the project. It is recommended by the specialist that Tambotie OBDA 1 (alternative 1) be considered the preferred alternative, due to the fact that it is situated further away from any visual receptors and therefore the visual intrusion of the OBDA (with a max height of 15m) will be less significant compared to OBDA 2 (alternative 2) which is situated closer to the R511. All recommendations and mitigation measures have been incorporated into the project EMPr for implementation.

h) Type of environment affected by the proposed activity

Please refer to question g above.

i) Description of the current land uses

Land uses observed throughout the study area mainly constitute agricultural (olive farms, wheat farms, small scale farming etc.), game farms, mining activities and natural land / open space (dense natural vegetation with height of approximately 4m). The Assen OBDA is partially situated on existing agricultural fields with the Tambotie OBDA alternatives situated on natural open space.

The low-density urbanisation in the area is in the form of some farm homesteads and the small Assen hamlet, consisting of a police station and general store. The cultivation in the area is mainly in the form of high-intensity, pivot-irrigated maize production.

Please refer to Figure 13 below for the Land Use Map of the study area, including all infrastructure such as powerlines and pipelines.

j) Description of specific environmental features and infrastructure on the site

The proposed development is situated within a cultural landscape that is integrated with existing mining activities to the north and south of the study area, game farming, and small olive farming. PPC housing facilities are considered the closest residential area, situated north (Assen) and east (Tambotie) of the ore bodies respectively. The farmsteads on Assen is located within a 5km radius of the study area.

k) Environmental and current land use map

(Show all environmental, and current land use features)

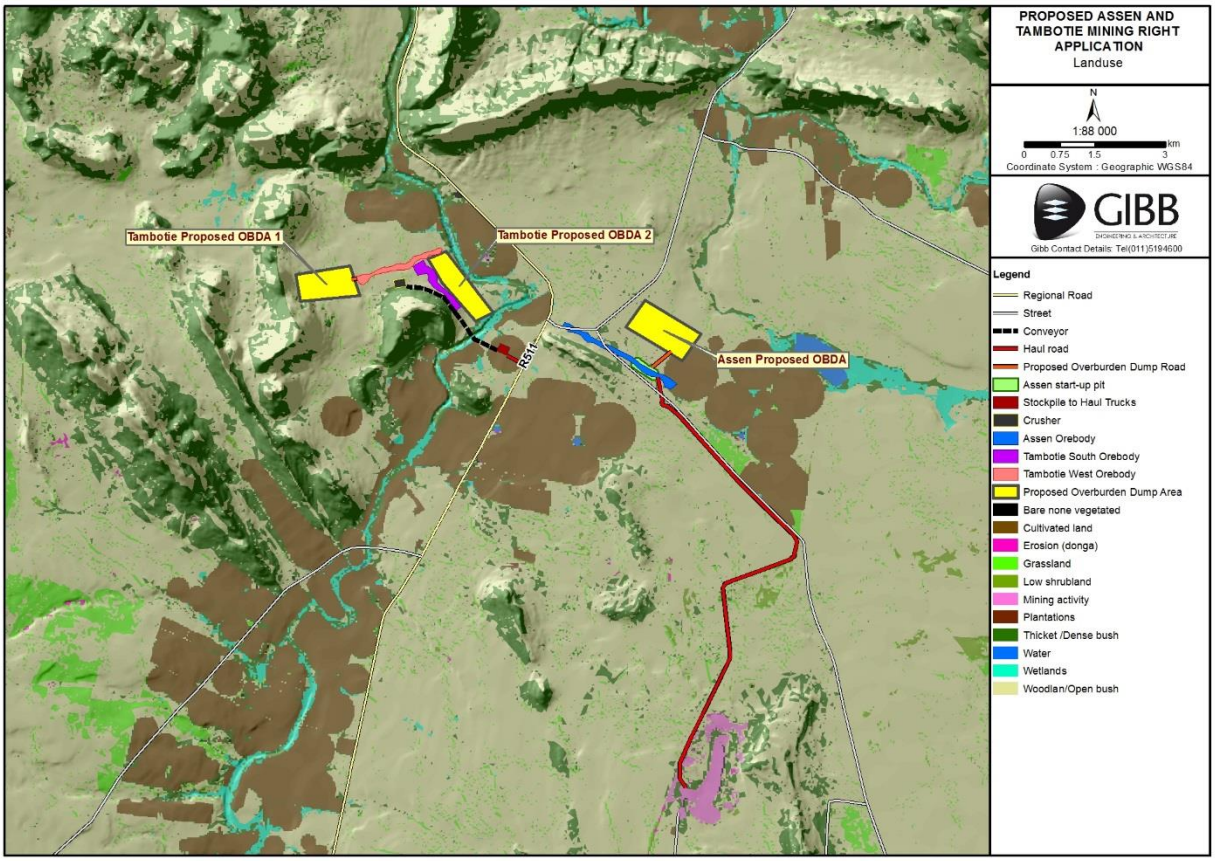


Figure 13: Land Use Map of the Study Area

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

Given the nature of the activity a conservative pre-mitigation approach has been taken.

TAMBOTIE OBDA 1 (ALTERNATIVE 1)

LOSS OF VEGETATION & FAUNAL DISPLACEMENT				
PROJECT PHASE	*Construction Phase*			
DIRECT IMPACT	*Loss of vegetation and faunal displacement due to the establishment of OBDA's, haul roads, primary crusher, conveyor system and stockpiles associated with the proposed ore body mining activities*			
INDIRECT IMPACT	--			
CUMULATIVE IMPACT	--			
DIMENSION	**RATING**	**MOTIVATION**	**CONSEQUENCE**	**LIKELIHOOD**
PRE-MITIGATION				
DURATION	*2*	*The duration of the activity associated with the impact will last 6-18 months and as such is rated as Short term*	*-8*	*3*
EXTENT	*2*	*The extent of the impact is rated as site as it will affect only the development area*		
SEVERITY	*-2*	*The severity of the impact is rated as Moderate negative as the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected*	***Slightly Detrimental***	***Definite***
IMPACT ON IRREPLACEBLE REOURCES	*0*	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	***-24***	***low - negative***		
PROPOSED MITIGATION MEASURES				
Any temporary storage facilities to be setup in existing built-up areas or disturbed areas only;				
No temporary facilities or portable toilets to be setup within 100m of any watercourses, including wetlands;				
Haul roads need to be maintained throughout the lifespan of the project;				
Haul roads associated with the Tambotie South orebody needs to avoid impacting on the hill situated west of the site;				
No removal of protected trees may take place without having the necessary permits in place;				
An erosion plan needs to be developed and implemented as part of the project activities;				
A stormwater management plan needs to be developed and implemented on site;				
Construction activities need to be limited to the footprint of the proposed development to avoid impacting on surrounding environmental conditions unnecessarily;				
Only clear vegetation where absolutely necessary; and				
Stockpile areas will be decided and approved by the Project Manager and appointed ECO before construction commences on site and should not be located within drainage lines.				

POST-MITIGATION				
DURATION	2	*The duration of the activity associated with the impact will last 6-18 months and as such is rated as Short term*	*-6*	*1*
EXTENT	1	*The extent of the impact is rated as footprint as it only affects the area in which the proposed activity will occur*		
SEVERITY	-2	*The severity of the impact is rated as Moderate negative as the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected*	***Negligible***	***Unlikely***
IMPACT ON IRREPLACEBLE REOURCES	0	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	**-6**	**very low negative**		
CONFIDENCE LEVEL				
Medium				

DEGRADATION OF WATERCOURSE FEATURES				
PROJECT PHASE	*Construction Phase*			
DIRECT IMPACT	*Degradation of watercourse resources situated in the vicinity of the development area due to the establishment of OBDA's, haul roads, primary crusher, conveyor system and stockpiles associated with the proposed ore body mining activities*			
INDIRECT IMPACT	--			
CUMULATIVE IMPACT	--			
DIMENSION	**RATING**	**MOTIVATION**	**CONSEQUENCE**	**LIKELIHOOD**
PRE-MITIGATION				
DURATION	*2*	*The duration of the activity associated with the impact will last 6-18 months and as such is rated as Short term*	*-15*	*3*
EXTENT	*3*	*The extent of the impact is rated as Local as it affects the development area and adjacent properties*		
SEVERITY	*-3*	*The severity of the impact is rated as High negative as the natural, cultural or social functions and processes are altered to the extent that the natural process will temporarily or permanently cease; and valued, important, sensitive or vulnerable systems or*	***Moderately Detrimental***	***Definite***

		communities are substantially affected.		
IMPACT ON IRREPLACEBLE REOURCES	*0*	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	***-45***	***moderate - negative***		
PROPOSED MITIGATION MEASURES				
No temporary facilities or portable toilets to be setup within 100m of any watercourses, including wetlands;				
A stormwater management plan needs to be developed and implemented on site;				
Any direct or indirect impacts on the Crocodile River resulting from any activities at or from the ore body mine to be monitored continually and rectified immediately. Such impacts include, but are not limited to, siltation, erosion, spillage, destruction of riverbanks, etc.;				
Any river crossings for haul roads, vehicles and staff to be continually monitored and maintained;				
Construction activities need to be limited to the footprint of the proposed development to avoid impacting on surrounding environmental conditions unnecessarily;				
A 200m bufferzone to be implemented between the edge of the demarcated ore body area and the edge of the riparian zone of the Crocodile River. This in the area between the river and the eastern boundary area of the ore body site.				
Existing river crossings, if used, to be continually monitored and maintained. Any additional or new river crossings for haul roads or access roads will require a WULA process				
The conveyor system may not extend on the slope of the nearby hill. The conveyor must be aligned to extend along the bottom and off the slope of the hill;				
A Water Use Licence Application (WULA) process will be required to put the conveyor across the river;				
No riparian vegetation immediately outside of the belt servitude may be removed				
The stockpile area for the ore may not be within 100m of the riparian zone of the Crocodile River; and				
Proper caging and supports are required along the conveyor where it crosses the Crocodile River to completely prevent any debris, soil, ore, etc. from falling into the river. This caging must extend past the riparian zone of the river.				
POST-MITIGATION				
DURATION	2	*The duration of the activity associated with the impact will last 6-18 months and as such is rated as Short term*	*-6*	*1*
EXTENT	1	*The extent of the impact is rated as footprint as it only affects the area in which the proposed activity will occur*		
SEVERITY	-2	*The severity of the impact is rated as Moderate negative as the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected*	***Negligible***	***Unlikely***
IMPACT ON IRREPLACEBLE REOURCES	0	*No irreplaceable resources will be impacted.*		

SIGNIFICANCE	**-6 very low negative**			
CONFIDENCE LEVEL				
Medium				
DESTRUCTION / DAMAGE TO HERITAGE RESOURCES				
PROJECT PHASE	*Construction Phase*			
DIRECT IMPACT	*Damage and / or destruction of features constituting Late Iron Age significance due to the development of the haul road, as well as the destruction of buildings / structures older than 60 years due to the development of the Assen Ore Body site*			
INDIRECT IMPACT	--			
CUMULATIVE IMPACT	--			
DIMENSION	**RATING**	**MOTIVATION**	**CONSEQUENCE**	**LIKELIHOOD**
PRE-MITIGATION				
DURATION	*2*	*The duration of the activity associated with the impact will last 6-18 months and as such is rated as Short term*	*-18*	*3*
EXTENT	*3*	*The extent of the impact is rated as Local as it affects the development area and adjacent properties*		
SEVERITY	*-3*	*The severity of the impact is rated as High negative as the natural, cultural or social functions and processes are altered to the extent that the natural process will temporarily or permanently cease; and valued, important, sensitive or vulnerable systems or communities are substantially affected.*	***Moderately Detrimental***	***Definite***
IMPACT ON IRREPLACEBLE REOURCES	*1*	*Irreplaceable resources will be impacted.*		
SIGNIFICANCE	***-54***	***moderate - negative***		
PROPOSED MITIGATION MEASURES				
The stone walled LIA site recorded in the study area has been avoided by means of shifting the starting point of the proposed haul road by at least 100m around the LIA site;				
Location of mining infrastructure should be restricted to minimum footprint impact especially where such infrastructure fall within busy areas. Such bushy sections have local ethno-botany significance as sources of traditional herbs and medicines. As such disruption and vegetation clearance should be kept to a minimum;				
Preserved bushveld areas should be protected for ethnobotany significance. As such, this development should avoid excessive vegetation clearance during the development;				
Any LIA remains uncovered during development must be investigated by an archaeologist accredited with ASAPA, following which a permit needs to be obtained from SAHRA before these ruins may be altered;				
An archaeologist will need to be appointed to undertake an archaeological walk-down survey of the haul road servitude once the development has been approved and a final route plan issued;				

The development footprint impact of the proposed haul road and mine should be kept to a minimal to limit the potential of encountering chance finds within the servitude;				
Should archaeological or human remains be disturbed during the development activities, then immediate remedial rescue and salvage work will need to be undertaken without delay;				
Destruction / demolition permit must be obtained from SAHRA for the houses / farm steads that may be affected by the mining activities within the next 12 – 15 years of mining.				
POST-MITIGATION				
DURATION	2	*The duration of the activity associated with the impact will last 6-18 months and as such is rated as Short term*	*-8*	*1*
EXTENT	1	*The extent of the impact is rated as footprint as it only affects the area in which the proposed activity will occur*		
SEVERITY	-2	*The severity of the impact is rated as Moderate negative as the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected*	***Slightly Detrimental***	***Unlikely***
IMPACT ON IRREPLACEBLE REOURCES	1	*Irreplaceable resources will be impacted.*		
SIGNIFICANCE	**-8**	**very low negative**		
CONFIDENCE LEVEL				
Medium				

LOCALISED GROUNDWATER DEWATERING				
PROJECT PHASE	*Construction Phase*			
DIRECT IMPACT	*Localised groundwater dewatering during the construction phase of the activity for the purpose of drinking and / or dust suppression making use of additional boreholes*			
INDIRECT IMPACT	--			
CUMULATIVE IMPACT	--			
DIMENSION	**RATING**	**MOTIVATION**	**CONSEQUENCE**	**LIKELIHOOD**
PRE-MITIGATION				
DURATION	*2*	*The duration of the activity associated with the impact will last 6-18 months and as such is rated as Short term*	*-10*	*2*
EXTENT	*3*	*The extent of the impact is rated as Local as it affects the development area and adjacent properties*		

SEVERITY	*-2*	*The severity of the impact is rated as Moderate negative as the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected*	***Slightly Detrimental***	***Likely***
IMPACT ON IRREPLACEBLE REOURCES	*0*	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	***-20***	***low - negative***		
PROPOSED MITIGATION MEASURES				
Borehole abstraction (if any) should be managed effectively and borehole water levels and abstraction volumes from borehole should be recorded at least weekly.				
POST-MITIGATION				
DURATION	2	*The duration of the activity associated with the impact will last 6-18 months and as such is rated as Short term*	*-6*	*1*
EXTENT	1	*The extent of the impact is rated as footprint as it only affects the area in which the proposed activity will occur*		
SEVERITY	-2	*The severity of the impact is rated as Moderate negative as the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected*	***Negligible***	***Unlikely***
IMPACT ON IRREPLACEBLE REOURCES	0	*Irreplaceable resources will be impacted.*		
SIGNIFICANCE	**-6**	**very low negative**		
CONFIDENCE LEVEL				
Medium				

GROUNDWATER & SURFACE WATER CONTAMINATION	
PROJECT PHASE	*Construction Phase*
DIRECT IMPACT	*Groundwater contamination due to domestic waste and hydrocarbon spillages from construction activities and associated contaminating substances seeping into the local groundwater resource during the construction phase*
INDIRECT IMPACT	--
CUMULATIVE IMPACT	--

DIMENSION	RATING	MOTIVATION	CONSEQUENCE	LIKELIHOOD
PRE-MITIGATION				
DURATION	*2*	*The duration of the activity associated with the impact will last 6-18 months and as such is rated as Short term*	*-15*	*2*
EXTENT	*3*	*The extent of the impact is rated as Local as it affects the development area and adjacent properties*		
SEVERITY	*-3*	*The severity of the impact is rated as High negative as the natural, cultural or social functions and processes are altered to the extent that the natural process will temporarily or permanently cease; and valued, important, sensitive or vulnerable systems or communities are substantially affected.*	***Moderately Detrimental***	***Likely***
IMPACT ON IRREPLACEBLE REOURCES	*0*	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	***-30***	***low – negative***		
PROPOSED MITIGATION MEASURES				
All staff and supervisors at workshops, yellow metal laydown areas and fuel storage areas should be trained in hydrocarbon spill response;				
Each laydown area and / or fuel storage area should be equipped with the appropriate spill response kits, where any contaminated soil will need to be disposed of correctly at a suitable location; and				
All domestic waste generated will need to be disposed of at a suitable landfill site along with proper housekeeping practices that should be maintained on site.				
No hydrocarbon storage to be within 100m of watercourses.				
POST-MITIGATION				
DURATION	2	*The duration of the activity associated with the impact will last 6-18 months and as such is rated as Short term*	*-10*	*1*
EXTENT	3	*The extent of the impact is rated as Local as it affects the development area and adjacent properties*		
SEVERITY	-2	*The severity of the impact is rated as Moderate negative as the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected*	***Slightly Detrimental***	***Unlikely***

IMPACT ON IRREPLACEBLE REOURCES	0	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	**-10**	**very low negative**		
CONFIDENCE LEVEL				
Medium				

CHANGE IN VISUAL AESTHETICS				
PROJECT PHASE	*Construction Phase*			
DIRECT IMPACT	*Visual impact on sensitive receiving environments, towns, farmsteads and major roads situated within a 5km radius due to the development of the overburden dump areas, vegetation clearance and development of the access road*			
INDIRECT IMPACT	--			
CUMULATIVE IMPACT	--			
DIMENSION	**RATING**	**MOTIVATION**	**CONSEQUENCE**	**LIKELIHOOD**
PRE-MITIGATION				
DURATION	*2*	*The duration of the activity associated with the impact will last 6-18 months and as such is rated as Short term*	*-8*	*3*
EXTENT	*2*	*The extent of the impact is rated as site as it will affect only the development area*		
SEVERITY	*-2*	*The severity of the impact is rated as Moderate negative as the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected*	***Slightly Detrimental***	***Definite***
IMPACT ON IRREPLACEBLE REOURCES	*0*	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	***-24***	***low - negative***		
PROPOSED MITIGATION MEASURES				
Ensure that vegetation is not unnecessarily removed during the construction phase. Maintain as much natural vegetation around the site as possible;				
Reduce the construction period through careful logistical planning and productive implementation of resources;				
Rehabilitate all disturbed areas immediately after construction; and				
Restrict construction activities to daylight hours in order to reduce lighting impacts				

POST-MITIGATION				
DURATION	2	*The duration of the activity associated with the impact will last 6-18 months and as such is rated as Short term*	*-4*	*1*
EXTENT	2	*The extent of the impact is rated as site as it will affect only the development area*		
SEVERITY	-1	*The severity of the impact is rated as Low negative as the impact affects the environment in such a way that natural, cultural and social functions and processes are minimally affected*	***Negligible***	***Unlikely***
IMPACT ON IRREPLACEBLE REOURCES	0	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	**-4**	**very low negative**		
CONFIDENCE LEVEL				
Medium				

INCREASED NOISE GENERATION				
PROJECT PHASE	*Construction Phase*			
DIRECT IMPACT	*Increased noise generation during construction activities and its associated nuisance impact on the receiving environment*			
INDIRECT IMPACT	--			
CUMULATIVE IMPACT	--			
DIMENSION	**RATING**	**MOTIVATION**	**CONSEQUENCE**	**LIKELIHOOD**
PRE-MITIGATION				
DURATION	*2*	*The duration of the activity associated with the impact will last 6-18 months and as such is rated as Short term*	*-5*	*3*
EXTENT	*3*	*The extent of the impact is rated as Local as it affects the development area and adjacent properties*		
SEVERITY	*-1*	*The severity of the impact is rated as Low negative as the impact affects the environment in such a way that natural, cultural and social functions and processes are minimally affected*	***Negligible***	***Definite***
IMPACT ON IRREPLACEBLE REOURCES	*0*	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	***-15***	***very low negative***		

PROPOSED MITIGATION MEASURES				
All diesel-powered equipment and plant vehicles should be kept at a high level of maintenance. This should particularly include the regular inspection and, if necessary, replacement of intake and exhaust silencers. Any change in the noise emission characteristics of equipment should serve as trigger for withdrawing it for maintenance;				
Noise generation should be limited, as such vendors should be required to guarantee optimised equipment design noise levels; and				
A mechanism to monitor noise levels, record and respond to complaints and mitigate impacts should be developed				
POST-MITIGATION				
DURATION	2	*The duration of the activity associated with the impact will last 6-18 months and as such is rated as Short term*	*-4*	*1*
EXTENT	2	*The extent of the impact is rated as site as it will affect only the development area*		
SEVERITY	-1	*The severity of the impact is rated as Low negative as the impact affects the environment in such a way that natural, cultural and social functions and processes are minimally affected*	***Negligible***	***Unlikely***
IMPACT ON IRREPLACEBLE REOURCES	0	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	**-4**	**very low negative**		
CONFIDENCE LEVEL				
Medium				
INCREASED OCCURRENCE AND SPREAD OF DISEASES (SOCIAL)				
PROJECT PHASE	*Construction Phase*			
DIRECT IMPACT	--			
INDIRECT IMPACT	*Potential increase in the occurrence and spread of diseases such as HIV/AIDs due to an influx of construction workforce (migrant workers) to the local area and associated towns*			
CUMULATIVE IMPACT	--			
DIMENSION	**RATING**	**MOTIVATION**	**CONSEQUENCE**	**LIKELIHOOD**
PRE-MITIGATION				
DURATION	*2*	*The duration of the activity associated with the impact will last 6-18 months and as such is rated as Short term*	*-10*	*2*
EXTENT	*3*	*The extent of the impact is rated as Local as it affects the development area and adjacent properties*		

SEVERITY	*-2*	*The severity of the impact is rated as Moderate negative as the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected*	***Slightly Detrimental***	***Likely***
IMPACT ON IRREPLACEBLE REOURCES	*0*	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	***-20***	***low - negative***		
PROPOSED MITIGATION MEASURES				
HIV & AIDS awareness talks should be given to the workers on a regular basis by the relevant personnel				
Local labour must be employed as far as possible.				
POST-MITIGATION				
DURATION	2	*The duration of the activity associated with the impact will last 6-18 months and as such is rated as Short term*	*-5*	*1*
EXTENT	3	*The extent of the impact is rated as Local as it affects the development area and adjacent properties*		
SEVERITY	-1	*The severity of the impact is rated as Low negative as the impact affects the environment in such a way that natural, cultural and social functions and processes are minimally affected*	***Negligible***	***Unlikely***
IMPACT ON IRREPLACEBLE REOURCES	0	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	**-5**	**very low negative**		
CONFIDENCE LEVEL				
Medium				

OPERATIONAL PHASE

DEGRADATION OF AIR QUALITY CONDITIONS				
PROJECT PHASE	*Operational Phase*			
DIRECT IMPACT	*Degradation of air quality conditions due to mine vehicles travelling on the unpaved haul roads between the orebodies, overburden dump areas and existing Beestekraal mine*			
INDIRECT IMPACT	--			
CUMULATIVE IMPACT	--			
DIMENSION	**RATING**	**MOTIVATION**	**CONSEQUENCE**	**LIKELIHOOD**
PRE-MITIGATION				

DURATION	*4*	*The duration of the activity associated with the impact will last more than 5 years and as such is rated as Long Term*	*-14*	*2*
EXTENT	*3*	*The extent of the impact is rated as Local as it affects the development area and adjacent properties*		
SEVERITY	*-2*	*The severity of the impact is rated as Moderate negative as the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected*	***Moderately Detrimental***	***Likely***
IMPACT ON IRREPLACEBLE REOURCES	*0*	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	***-28***	***low - negative***		
PROPOSED MITIGATION MEASURES				
Overburden stockpiles will need to be vegetated;				
Unpaved haul roads will need to be watered (or alternative methods used) as part of dust suppression requirements.				
All domestic waste generated will need to be disposed of at a suitable landfill site along with proper housekeeping practices that should be maintained on site.				
Vehicle speeds to be limited on haul roads.				
POST-MITIGATION				
DURATION	2	*The duration of the activity associated with the impact will last 6-18 months and as such is rated as Short term*	*-10*	*1*
EXTENT	3	*The extent of the impact is rated as Local as it affects the development area and adjacent properties*		
SEVERITY	-2	*The severity of the impact is rated as Moderate negative as the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected*	***Slightly Detrimental***	***Unlikely***
IMPACT ON IRREPLACEBLE REOURCES	0	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	**-10**	**very low negative**		
CONFIDENCE LEVEL				

Medium				
CHANGE IN VISUAL AESTHETICS				
PROJECT PHASE	*Operational Phase*			
DIRECT IMPACT	*Visual impact on sensitive receiving environments, towns, farmsteads and major roads situated within a 5km radius due to the overburden waste being stored in the designated overburden dump areas, reaching a maximum height of 15m*			
INDIRECT IMPACT	--			
CUMULATIVE IMPACT	--			
DIMENSION	**RATING**	**MOTIVATION**	**CONSEQUENCE**	**LIKELIHOOD**
PRE-MITIGATION				
DURATION	*4*	*The duration of the activity associated with the impact will last more than 5 years and as such is rated as Long Term*	*-14*	*3*
EXTENT	*3*	*The extent of the impact is rated as Local as it affects the development area and adjacent properties*		
SEVERITY	*-2*	*The severity of the impact is rated as Moderate negative as the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected*	***Moderately Detrimental***	***Definite***
IMPACT ON IRREPLACEBLE REOURCES	*0*	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	***-42***	***moderate - negative***		
PROPOSED MITIGATION MEASURES				
Ensure that vegetation is not unnecessrily removed during the construction phase. Maintain as much natural vegetation around the site as possible throughout the operational phase of the project;				
Limit operational activities to daylight hours in order to reduce lighting impacts. Should operations continue during night time, ensure careful and strategic placement of lights; and				
Rehabilitate all disturbed areas immediately.				
POST-MITIGATION				
DURATION	4	*The duration of the activity associated with the impact will last more than 5 years and as such is rated as Long Term*	*-6*	*1*
EXTENT	2	*The extent of the impact is rated as site as it will affect only the development area*		

SEVERITY	-1	*The severity of the impact is rated as Low negative as the impact affects the environment in such a way that natural, cultural and social functions and processes are minimally affected*	***Neglible***	***Unlikely***
IMPACT ON IRREPLACEBLE REOURCES	0	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	**-6**	**very low negative**		
CONFIDENCE LEVEL				
Medium				

INCREASED NOISE GENERATION				
PROJECT PHASE	*Operational Phase*			
DIRECT IMPACT	*Increased noise generation during operational activities and its associated nuisance impact on the receiving environment*			
INDIRECT IMPACT	--			
CUMULATIVE IMPACT	--			
DIMENSION	**RATING**	**MOTIVATION**	**CONSEQUENCE**	**LIKELIHOOD**
PRE-MITIGATION				
DURATION	*4*	*The duration of the activity associated with the impact will last more than 5 years and as such is rated as Long term*	*-7*	*2*
EXTENT	*3*	*The extent of the impact is rated as Local as it affects the development area and adjacent properties*		
SEVERITY	*-1*	*The severity of the impact is rated as Low negative as the impact affects the environment in such a way that natural, cultural and social functions and processes are minimally affected*	***Slightly Detrimental***	***Likely***
IMPACT ON IRREPLACEBLE REOURCES	*0*	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	***-14***	***very low negative***		
PROPOSED MITIGATION MEASURES				
All diesel-powered equipment and plant vehicles should be kept at a high level of maintenance. This should particularly include the regular inspection and, if necessary, replacement of intake and exhaust silencers. Any change in the noise emission characteristics of equipment should serve as trigger for withdrawing it for maintenance;				
Noise generation should be limited, as such vendors should be required to guarantee optimised equipment design noise levels; and				
A mechanism to monitor noise levels, record and respond to complaints and mitigate impacts should be developed				

Adjacent landowners should be notified of blasting times in advance.				
POST-MITIGATION				
DURATION	*4*	*The duration of the activity associated with the impact will last more than 5 years and as such is rated as Long term*	*-7*	*2*
EXTENT	*3*	*The extent of the impact is rated as Local as it affects the development area and adjacent properties*		
SEVERITY	-1	*The severity of the impact is rated as Low negative as the impact affects the environment in such a way that natural, cultural and social functions and processes are minimally affected*	***Slightly Detrimental***	***Likely***
IMPACT ON IRREPLACEBLE REOURCES	0	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	**-14**	**very low negative**		
CONFIDENCE LEVEL				
Medium				

LOCALISED GROUNDWATER DEWATERING				
PROJECT PHASE	*Operational Phase*			
DIRECT IMPACT	*Localised groundwater dewatering affecting adjacent farms during the operational phase of the activity for the purpose of mining activities*			
INDIRECT IMPACT	--			
CUMULATIVE IMPACT	--			
DIMENSION	**RATING**	**MOTIVATION**	**CONSEQUENCE**	**LIKELIHOOD**
PRE-MITIGATION				
DURATION	*4*	*The duration of the activity associated with the impact will last more than 5 years and as such is rated as Long term*	*-12*	*1*
EXTENT	*2*	*The extent of the impact is rated as site as it affects only the development area*		
SEVERITY	*-2*	*The severity of the impact is rated as Moderate negative as the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected*	***Slightly Detrimental***	***unlikely***

IMPACT ON IRREPLACEBLE REOURCES	*0*	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	***-12***	***Very low - negative***		
PROPOSED MITIGATION MEASURES				
This impact is unlikely to occur as the geohydrological assessment has proven that the dewatering of the pit will not affect adjacent water users. However should adjacent water users be negatively affected, alternate access to water sources should be investigated by the mine.				
Ground water levels should be monitored regularly to identify any negative trends proactively. Appropriate intervention methods must be design and implemented by the mine.				
POST-MITIGATION				
DURATION	*4*	*The duration of the activity associated with the impact will last more than 5 years and as such is rated as Long term*	*-12*	*1*
EXTENT	*2*	*The extent of the impact is rated as site as it affects only the development area*		
SEVERITY	-2	*The severity of the impact is rated as Moderate negative as the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected*	***Slightly Detrimental***	***Unlikely***
IMPACT ON IRREPLACEBLE REOURCES	*0*	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	***-12***	***Very low - negative***		
CONFIDENCE LEVEL				
Medium				

DECREASE IN AGRICULTURAL POTENTIAL				
PROJECT PHASE	*Operational Phase*			
DIRECT IMPACT	*Loss of arable land due to the establishment and operation of the proposed Assen / Tambotie mining areas, haul roads, OBDAs and associated infrastructure*			
INDIRECT IMPACT	--			
CUMULATIVE IMPACT	--			
DIMENSION	**RATING**	**MOTIVATION**	**CONSEQUENCE**	**LIKELIHOOD**
PRE-MITIGATION				
DURATION	*4*	*The duration of the activity associated with the impact will last more than 5 years and as such is rated as Long Term*	*-14*	*3*

EXTENT	*3*	*The extent of the impact is rated as Local as it affects the development area and adjacent properties*		
SEVERITY	*-2*	*The severity of the impact is rated as Moderate negative as the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected*	***Moderately Detrimental***	***Definite***
IMPACT ON IRREPLACEBLE REOURCES	*0*	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	***-42***	***moderate - negative***		
PROPOSED MITIGATION MEASURES				
Where topsoil or fines are available, these should be backfilled last in order to provide as smooth and least dangerous a surface as possible on areas that will be rehabilitated;				
Prior to the commencement of site clearing activities, an invitation needs to be extended to the Traditional Healers Association to harvest materials useful to their practices;				
It is recommended that an entrepreneurially minded SMME be established to undertake the harvesting and marketing of commercially valuable timber. This is preferable compared to stockpiling and burning;				
Topsoil up to a depth of 600mm will need to be placed on its own stockpile and a fast growing runner grass will need to be planted on it in order to minimize dust dispersal and stormwater erosion;				
Soft plinthite stratum will need to be placed on its own stockpile and kept damp, it natural state;				
Topsoil should be firmly bedded but not compacted. This will create a receptive bed for grasses, shrubs and trees as they commence to re-seed and re-establish themselves;				
Waste rock will need to be placed on its own stockpile;				
The area with the greatest agricultural potential that will be affected is the site of the conveyor belt stockpile and haul road. The size of this area is rather small compared to the rest of the mining footprint.				
POST-MITIGATION				
DURATION	4	*The duration of the activity associated with the impact will last more than 5 years and as such is rated as Long Term*	*-12*	*2*
EXTENT	2	*The extent of the impact is rated as site as it will affect only the development area*		
SEVERITY	*-2*	*The severity of the impact is rated as Moderate negative as the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected*	***Slightly Detrimental***	***Likely***

IMPACT ON IRREPLACEBLE REOURCES	0	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	**-24**	**low - negative**		
CONFIDENCE LEVEL				
Medium				

TAMBOTIE OBDA 2 (ALTERNATIVE 2)

PLEASE NOTE THAT IMPACTS ASSOCIATED WITH ALTERNATIVE 2 IS THE SAME AS THAT FOR ALTERNATIVE 1 WITH THE EXCEPTION OF THE FOLLOWING:

DEGRADATION OF WATERCOURSE FEATURES				
PROJECT PHASE	*Construction Phase*			
DIRECT IMPACT	*Degradation of the Crocodile River due to hydrocarbon spillages from construction vehicles with particular reference to the close proximity of the proposed OBDA to the river feature*			
INDIRECT IMPACT	--			
CUMULATIVE IMPACT	--			
DIMENSION	**RATING**	**MOTIVATION**	**CONSEQUENCE**	**LIKELIHOOD**
PRE-MITIGATION				
DURATION	*2*	*The duration of the activity associated with the impact will last 6-18 months and as such is rated as Short term*	*-15*	*3*
EXTENT	*3*	*The extent of the impact is rated as Local as it affects the development area and adjacent properties*		
SEVERITY	*-3*	*The severity of the impact is rated as High negative as the natural, cultural or social functions and processes are altered to the extent that the natural process will temporarily or permanently cease; and valued, important, sensitive or vulnerable systems or communities are substantially affected.*	***Moderately Detrimental***	***Definite***
IMPACT ON IRREPLACEBLE REOURCES	*0*	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	***-45***	***moderate - negative***		
PROPOSED MITIGATION MEASURES				
All mitigation measures previously outlined for the management water watercourse resource impacts will apply;				
A 200m bufferzone from the outer edge of the Crocodile Riparian zone needs to be implemented as a minimum measure				
POST-MITIGATION				
DURATION	2	*The duration of the activity associated with the impact will last 6-18 months and as such is rated as Short term*	*-10*	*2*

EXTENT	3	*The extent of the impact is rated as Local as it affects the development area and adjacent properties*		
SEVERITY	-2	*The severity of the impact is rated as Moderate negative as the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected*	***Slightly Detrimental***	***Likely***
IMPACT ON IRREPLACEBLE REOURCES	0	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	**-20**	**low - negative**		
CONFIDENCE LEVEL				
Medium				

OPERATIONAL PHASE

CHANGE IN VISUAL AESTHETICS				
PROJECT PHASE	*Operational Phase*			
DIRECT IMPACT	*Visual impact on sensitive receiving environments, towns, farmsteads and major roads situated within a 5km radius due to the overburden waste being stored in the designated overburden dump areas, reaching a maximum height of 15m*			
INDIRECT IMPACT	--			
CUMULATIVE IMPACT	--			
DIMENSION	**RATING**	**MOTIVATION**	**CONSEQUENCE**	**LIKELIHOOD**
PRE-MITIGATION				
DURATION	*4*	*The duration of the activity associated with the impact will last more than 5 years and as such is rated as Long Term*	*-14*	*3*
EXTENT	*3*	*The extent of the impact is rated as Local as it affects the development area and adjacent properties*		
SEVERITY	*-2*	*The severity of the impact is rated as Moderate negative as the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected*	***Moderately Detrimental***	***Definite***

IMPACT ON IRREPLACEBLE REOURCES	*0*	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	***-42***	***moderate - negative***		
PROPOSED MITIGATION MEASURES				
Ensure that vegetation is not unnecessarily removed during the construction phase. Maintain as much natural vegetation around the site as possible throughout the operational phase of the project;				
Limit operational activities to daylight hours in order to reduce lighting impacts. Should operations continue during night time, ensure careful and strategic placement of lights; and				
Rehabilitate all disturbed areas immediately.				
POST-MITIGATION				
DURATION	4	*The duration of the activity associated with the impact will last more than 5 years and as such is rated as Long Term*	*-14*	*2*
EXTENT	*3*	*The extent of the impact is rated as Local as it affects the development area and adjacent properties*		
SEVERITY	-2	*The severity of the impact is rated as Moderate negative as the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected*	***Moderately Detrimental***	***Likely***
IMPACT ON IRREPLACEBLE REOURCES	0	*No irreplaceable resources will be impacted.*		
SIGNIFICANCE	**-28**	**low - negative**		
CONFIDENCE LEVEL				
Medium				

ii) 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).

IMPACT ASSESSMENT METHODOLOGY

The objective of the assessment of impacts is to identify and assess all the significant impacts that may arise as a result of the proposed development.

For each of the main project phases the existing and potential future impacts and benefits (associated only with the proposed development) were described using the criteria listed in below. This was done in accordance with the EIA regulations of 2014, promulgated in terms of Section 24 of the NEMA and the criteria drawn from the IEM Guidelines Series, Guideline 5: Assessment of Alternatives and Impacts, published by the DEAT (April 1998).The assignment of ratings has been undertaken based on past experience of the EIA team, as well as through research. Subsequently, mitigation measures have been identified and considered for each impact and the assessment repeated in order to determine the significance of the residual impacts (the impact remaining after the mitigation measure has been implemented).

Criteria	Rating Scales	Notes
Nature	Positive	An evaluation of the effect of the impact related to the proposed development
	Negative	
Extent	Footprint	The extent of the impact is rated as footprint as it only affects the area in which the proposed activity will occur
	Site	The extent of the impact is rated as site as it will affect only the development area
	Local	The extent of the impact is rated as Local as it affects the development area and adjacent properties
	Regional	The extent of the impact is rated as Regional as the effects of the impact extends beyond municipal boundaries
	National	The extent of the impact is rated as National as the effects of the impact extends beyond more than 2 regional/ provincial boundaries
	International	The extent of the impact is rated as International as the effect of the impact extends beyond country borders
Duration	Temporary	The duration of the activity associated with the impact will last 0-6 months and as such is rated as Temporary
	Short term	The duration of the activity associated with the impact will last 6-18 months

		and as such is rated as Short term
	Medium term	The duration of the activity associated with the impact will last 18 months-5 years and as such is rated as Medium term
	Long term	The duration of the activity associated with the impact will last more than 5 years and as such is rated as Long Term
Severity	High negative	The severity of the impact is rated as High negative as the natural, cultural or social functions and processes are altered to the extent that the natural process will temporarily or permanently cease; and valued, important, sensitive or vulnerable systems or communities are substantially affected.
	Moderate negative	The severity of the impact is rated as Moderate negative as the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected
	Low negative	The severity of the impact is rated as Low negative as the impact affects the environment in such a way that natural, cultural and social functions and processes are minimally affected
	Low positive	The severity of the impact is rated as Low positive as the impact affects the environment in such a way that natural, cultural and social functions and processes are minimally improved
	Moderate positive	The severity of the impact is rated as Moderate positive as the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are positively affected

	High positive	The severity of the impact is rated as High positive as the natural, cultural or social functions and processes are altered to the extent that valued, important, sensitive or vulnerable systems or communities are substantially positively affected.
Potential for impact on irreplaceable resources	No	No irreplaceable resources will be impacted.
	Yes	Irreplaceable resources will be impacted.
Consequence	Extremely detrimental	A combination of extent, duration, intensity and the potential for impact on irreplaceable resources
	Highly detrimental	
	Moderately detrimental	
	Slightly detrimental	
	Negligible	
	Slightly beneficial	
	Moderately beneficial	
	Highly beneficial	
	Extremely beneficial	
Likelihood of the impact occurring	Unlikely	It is highly unlikely or less than 50 % likely that an impact will occur.
	Likely	It is between 50 and 75 % certain that the impact will occur.
	Definite	It is more than 75 % certain that the impact will occur or it is definite that the impact will occur.
Significance	Very high - negative	A function of Consequence and Likelihood
	High - negative	
	Moderate - negative	
	Low - negative	
	Very low	
	Low - positive	
	Moderate - positive	
	High - positive	
	Very high - positive	

Table 5: Impact Assessment Criteria and Rating Scales

Duration		Extent		Irreplaceable Resources		Severity		Consequence = (Duration+Extent+Irr) x Severity		Likelihood		Significance		Confidence
1	Temporary	1	Footprint	1	Yes	-3	High - negative	-25 to -33	Extremely detrimental	1	Unlikely	-73 to -99	Very high - negative	Low
2	Short term	2	Site	0	No	-2	Moderate - negative	-19 to -24	Highly detrimental	2	Likely	-55 to -72	High - negative	Medium
3	Medium term	3	Local			-1	Low -negative	-13 to -18	Moderately detrimental	3	Definite	-37 to -54	Moderate - negative	High
4	Long term	4	Regional					-7 to -12	Slightly detrimental			-19 to -36	Low - negative	
		5	National			1	Low -positive	0 to -6	Negligible			0 to -18	Very low - negative	
		6	International			2	Moderate - positive							
						3	High - positive	0 to 6	Negligible			0 to 18	Very Low - positive	
								7 to 12	Slightly beneficial			19 to 36	Low - positive	
								13 to 18	Moderately beneficial			37 to 54	Moderate - positive	
								19 to 24	Highly beneficial			55 to 72	High - positive	
								25 to 33	Extremely beneficial			73 to 99	Very high - positive	

ASCRIBING SIGNIFICANCE FOR DECISION-MAKING

The best way of expressing these cost benefit implications for decision-making is to present them as risks. Risk is defined as the consequence (implication) of an event multiplied by the probability (likelihood)1 of that event. Many risks are accepted or tolerated on a daily basis because even if the consequence of the event is serious, the likelihood that the event will occur is low. A practical example is the consequence of a parachute not opening, is potentially death but the likelihood of such an event happening is so low that parachutists are prepared to take that risk and hurl themselves out of an airplane. The risk is low because the likelihood of the consequence is low even if the consequence is potentially severe.

It is also necessary to distinguish between the event itself (as the cause) and the consequence. Again using the parachute example, the consequence of concern in the event that the parachute does not open is serious injury or death, but it does not necessarily follow that if a parachute does not open that the parachutist will die.

Various contingencies are provided to minimise the likelihood of the consequence (serious injury or death) in the event of the parachute not opening, such as a reserve parachute. In risk terms this means distinguishing between the inherent risk (the risk that a parachutist will die if the parachute does not open) and the residual risk (the risk that the parachutist will die if the parachute does not open but with the contingency of a reserve parachute) i.e. the risk before and after mitigation.

CONSEQUENCE

The ascription of significance for decision-making becomes then relatively simple. It requires the consequences to be ranked and likelihood to be defined of that consequence. In Table 6 below a scoring system for consequence ranking is shown. Two important features should be noted in the table, namely that the scoring doubles as the risk increases and that there is no equivalent 'high' score in respect of benefits as there is for the costs. This high negative score serves to give expression to the potential for a fatal flaw where a fatal flaw would be defined as an impact that cannot be mitigated effectively and where the associated risk is accordingly untenable. Stated differently, the high score on the costs, which is not matched on the benefits side, highlights that such a fatal flaw cannot be 'traded off' by a benefit and would render the proposed project to be unacceptable.

Table 6: Ranking of consequence

Environmental Cost	**Inherent risk**
Human health – morbidity / mortality, loss of species	High
Material reductions in faunal populations, loss of livelihoods, individual economic loss	Moderate – high
Material reductions in environmental quality – air, soil, water. Loss of habitat, loss of heritage, amenity	Moderate
Nuisance	Moderate – low
Negative change – with no other consequences	Low

[1] Because 'probability' has a specific mathematical/empirical connotation the term 'likelihood' is preferred in a qualitative application and is accordingly the term used in this document.

Environmental Benefits	Inherent benefit
Net improvement in human welfare	Moderate – high
Improved environmental quality – air, soil, water. Improved individual livelihoods	Moderate
Economic Development	Moderate – Low
Positive change – with no other consequences	Low

LIKELIHOOD

Although the principle is one of probability, the term 'likelihood' is used to give expression to a qualitative rather than quantitative assessment, because the term 'probability' tends to denote a mathematical/empirical expression. A set of likelihood descriptors that can be used to characterise the likelihood of the costs and benefits occurring, is presented in Table 7.

Table 7: Likelihood categories and definitions

Likelihood Descriptors	Definitions
Highly unlikely	The possibility of the consequence occurring is negligible
Unlikely but possible	The possibility of the consequence occurring is low but cannot be discounted entirely
Likely	The consequence may not occur but a balance of probability suggests it will
Highly likely	The consequence may still not occur but it is most likely that it will
Definite	The consequence will definitely occur

It is very important to recognise that the likelihood question is asked twice. The first time the question is asked is the likelihood of the cause and the second as to the likelihood of the consequence. In the tables that follow the likelihood is presented of the cause and then the likelihood of the consequence is presented. A high likelihood of a cause does not necessarily translate into a high likelihood of the consequence. As such the likelihood of the consequence is not a mathematical or statistical 'average' of the causes but rather a qualitative estimate in its own right.

RESIDUAL RISK

The residual risk is then determined by the consequence and the likelihood of that consequence. The residual risk categories are shown in Table 8 where consequence scoring is shown in the rows and likelihood in the columns. The implications for decision-making of the different residual risk categories are shown in Table 9.

Table 8: Residual risk categories

		Residual risk				
Consequence	High	Moderate	High	High	Fatally flawed	
	Moderate – high	Low	Moderate	High	High	High
	Moderate	Low	Moderate	Moderate	Moderate	Moderate
	Moderate – low	Low	Low	Low	Low	Moderate

	Low	Low	Low	Low	Low	Low
		Highly unlikely	Unlikely but possible	Likely	Highly likely	Definite
		Likelihood				

Table 9: Implications for decision-making of the different residual risk categories

Rating	Nature of implication for Decision – Making
Low	Project can be authorised with low risk of environmental degradation
Moderate	Project can be authorised but with conditions and routine inspections
High	Project can be authorised but with strict conditions and high levels of compliance and enforcement
Fatally Flawed	The project cannot be authorised

iii) 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)

There were no concerns raised by the community and / or affected parties with regards to the proposed layout options.

It should however be noted that alternative site options has been identified for the site location of the proposed Tambotie Overburden Dump Area (OBDA). The environmental impacts associated with the OBDA site alternatives have been assessed in detail as part of the Environmental Impact Assessment. The specific environmental sensitivities associated with each site alternative is used to determine the preferred site alternative for the proposed development.

The specific environmental impacts associated with the proposed development is provided in the sections above.

iv) 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).

There were no concerns raised by the community and / or affected parties with regards to the proposed layout options.

v) Motivation where no alternative sites were considered.

It is important to note that two site alternatives have been assessed for the proposed Tambotie OBDA. The specific environmental sensitivities associated with the proposed alternatives were identified and assessed as part of the Environmental Impact Assessment for this project. The specific environmental impacts are provided in the sections below.

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

The need and desirability for the project is supported by the need to graduate the existing prospecting right for the area to a mining right due to the confirmed prevalence of the relevant limestone ore bodies. The proposed development of the Assen / Tambotie mining operations will result in a number of employment opportunities to undertake the various mining, blasting and drilling operations on site which will inevitably contribute to economic upliftment of local community and the greater region. Individual training and upskilling opportunities will also become available with the implementation and operation of the proposed mine. The project will furthermore provide a secure and long term supply of limestone resource to the cement industry.

In addition, with the implementation of the project it will ultimately lead to the increase in Gross Domestic Product (GDP) for the country which resembles the country's economic wealth and makes it more lucrative overall for foreign investment.

From the detailed environmental impact assessment undertaken, it has been identified that the two Tambotie OBDA alternatives will have similar environmental impacts on the receiving environment with the exception of the severity of impacts experienced on the visual aesthetics and watercourse features situated throughout the study area.

Tambotie OBDA 1 will have the smallest environmental impact on the receiving environmental conditions. This is supported by the fact that Tambotie OBDA 2 is situated in close proximity to the Crocodile river with a high risk of water quality contamination and degradation of riparian vegetation; as well as due to the fact that the visual exposure of OBDA 2 will be significantly higher as compared to OBDA 1 that is situated further away from the provincial roads extending in proximity to the study area.

As such, the EAP considers **Tambotie OBDA 1** (with the rest of the mining infrastructure as shown on the layout plan) to be the preferred site alternative for the project as it allows for the various benefits associated with the project to be realised whilst at the same time having the smallest impact on the receiving environmental conditions.

l) 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.)

PLEASE REFER TO SECTION V ON PAGE 44 ABOVE.

m) 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).

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)**	**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
PLEASE REFER TO SECTION V ON PAGE 44 FOR THE COMPREHENSIVE ENVIRONMENTAL IMPACT ASSESSMENT INCLUDING IDENTIFIED RISKS, ASSOCIATED SIGNIFICANCE AND MITIGATION MEASURES FOR IMPLEMENTATION						

n) 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.
Visual Impact Assessment	**From the detailed study undertaken it was found that the visual exposure of the Tambotie OBDA 2 (alternative 2) is far greater than the visual exposure of OBDA 1 (alternative 1). As such it is recommended by the specialist that OBDA 1 be motivated as the preferred alternative for implementation.** **Furthermore, no fatal flaws were identified with regards to the implementation of the project. It is therefore recommended that the project proceed with the implementation of the proposed mitigation measures as part of the EMPr.** <u>Specialist Recommendations:</u> • Ensure that vegetation is not unnecessarily removed during the construction phase. Maintain as much natural vegetation around the site as possible throughout the operational phase of the project; • Limit operational activities to daylight hours in order to reduce lighting impacts. Should operations continue during night time, ensure careful and strategic placement of lights; and • Rehabilitate all disturbed areas immediately.	**X** **All recommendations made by the specialist has been incorporated throughout the S&EIR process**	**Section V on Page 44** of the Report – Environmental Impact Assessment and associated mitigation measures **Part B** – Environmental Management Programme
Ecological Impact Assessment	**From the detailed study undertaken it was found that Tambotie OBDA 2 (alternative 2) is situated in close proximity to the Crocodile river and therefore poses a greater risk for water quality degradation and loss of riparian vegetation compared to OBDA 1 (alternative 1) that is situated further away. As such it is recommended by the specialist that OBDA 1 be motivated as the preferred alternative for implementation.**	**X** **All recommendations made by the specialist has been incorporated throughout the S&EIR**	**Section V on Page 44** of the Report – Environmental Impact Assessment and associated mitigation measures **Part B** – Environmental

	In addition to this, no fatal flaws were identified with regards to the implementation of the project. It is therefore recommended that the project proceed with the implementation of the proposed mitigation measures as part of the EMPr. <u>Specialist Recommendations:</u> • A 200m bufferzone will need to be maintained from the outer edge of the riparian zone, where all development activities will need to take place outside of this bufferzone; • A Water Use Licence Application (WULA) or General Authorisation (GA) will need to be lodged for the proposed river crossing associated with the Tambotie conveyor system; • Tree permits will need to be obtained for the removal of protected tree species found throughout the study area. These tree species include Marula, Shepherd's tree, Camelthorn and Leadwood;	**process**	Management Programme
Agricultural Potential Assessment	**From the detailed study undertaken no fatal flaws were identified with regards to the implementation of the project. It is therefore recommended that the project proceed with the implementation of the proposed mitigation measures as part of the EMPr.** <u>Specialist Recommendations:</u> • Where topsoil or fines are available, these should be backfilled last in order to provide as smooth and least dangerous a surface as possible for areas to be rehabilitated; • Prior to the commencement of site clearing activities, an invitation needs to be extended to the Traditional Healers Association to harvest materials useful to their practices; • It is recommended that an entrepreneurially minded SMME be established to undertake the harvesting and marketing of commercially valuable timber. This is preferable compared to stockpiling and burning; • Topsoil up to a depth of 600mm will need to be placed on its	**X** **All recommendations made by the specialist has been incorporated throughout the S&EIR process**	**Section V on Page 44** of the Report – Environmental Impact Assessment and associated mitigation measures **Part B** – Environmental Management Programme

	own stockpile and a fast growing runner grass will need to be planted on it in order to minimize dust dispersal and stormwater erosion; • Soft plinthite stratum will need to be placed on its own stockpile and kept damp, it natural state; • Topsoil should be firmly bedded but not compacted. This will create a receptive bed for grasses, shrubs and trees as they commence to re-seed and re-establish themselves; and • Waste rock will need to be placed on its own stockpile.		
Air Quality Impact Assessment	**From the detailed study undertaken it was estimated that the predicted ambient concentrations of PM10 for the roads will have exceedances of the National Ambient Air Quality standards (NAAQs), resulting from the haul roads emissions. In addition to this the predicted ambient concentrations of PM25 also show exceedances of the NAAQs resulting from the haul roads. These exceedances are limited to in and around the haul roads and therefore will have an <u>insignificant</u> bearing insofar as environmental receptors are concerned.** **The overall predicted cumulative ambient concentrations of PM are well within the NAAQs. As such no fatal flaws were identified with regards to the implementation of the project. It is therefore recommended that the project proceed with the implementation of the proposed mitigation measures as part of the EMPr.** <u>Specialist Recommendations:</u> • Overburden stockpiles will need to be vegetated; and • Unpaved haul roads will need to be watered (or alternative methods used) as part of dust suppression requirements.	**X** **All recommendations made by the specialist has been incorporated throughout the S&EIR process**	**Section V on Page 44** of the Report – Environmental Impact Assessment and associated mitigation measures **Part B** – Environmental Management Programme
Heritage Impact Assessment	**From the detailed study undertaken no fatal flaws were identified with regards to the implementation of the project. It is therefore recommended that the project proceed with the implementation of the proposed mitigation measures as part of the EMPr.** <u>Specialist Recommendations:</u>	**X** **All recommendations made by the specialist has been incorporated**	**Section V on Page 44** of the Report – Environmental Impact Assessment and associated mitigation measures

	• The recorded Late Iron Age (LIA) site is preserved in situ by shifting the proposed haul road starting point by at least 100m (as shown in the layout plan); • For all farm dwellings older than 60 years, a phase 2 study will need to be undertaken and the structures may be destroyed subject to obtaining a destruction / demolition permit from North West Provincial Heritage Resources Agency when the mining activities get closer to these features (approximately in 12 – 15 years); • The haul road construction teams will need to be inducted on the significance of archaeological resources that may be encountered during subsurface construction work to ensure appropriate treatment and course of action is afforded to any chance finds; • Should any archaeological materials / resources be uncovered, then work should be ceased immediately and the SAHRA will need to be notified. No activity may resume until appropriate management provisions are put in place; • Location of mining infrastructure should be restricted to minimum footprint impact especially where such infrastructure fall within busy areas. Such bushy sections have local ethno-botany significance as sources of traditional herbs and medicines. As such disruption and vegetation clearance should be kept to a minimum; • Preserved bushveld areas should be protected for ethnobotany significance. As such, this development should avoid excessive vegetation clearance during the development; • An archaeologist will need to be appointed to undertake an archaeological walk-down survey of the haul road servitude once the development has been approved and a final route plan issued; • The development footprint impact of the proposed haul road and mine should be kept to a minimal to limit the potential of encountering chance finds within the servitude; and • Should archaeological or human remains be disturbed	**throughout the S&EIR process**	**Part B** – Environmental Management Programme

	during the development activities, then immediate remedial rescue and salvage work will need to be undertaken without delay		
Noise Impact Assessment	**From the detailed study undertaken it was found that predicted noise levels are not expected to exceed the day-time guideline of 55 dBA. No fatal flaws were identified with regards to the implementation of the project. It is therefore recommended that the project proceed with the implementation of the proposed mitigation measures as part of the EMPr.** <u>Specialist Recommendations:</u> • All diesel-powered equipment and plant vehicles should be kept at a high level of maintenance. This should particularly include the regular inspection and, if necessary, replacement of intake and exhaust silencers. Any change in the noise emission characteristics of equipment should serve as trigger for withdrawing it for maintenance; • Noise generation should be limited, as such vendors should be required to guarantee optimised equipment design noise levels; and • A mechanism to monitor noise levels, record and respond to complaints and mitigate impacts should be developed; • Sampling should be carried out using a Type 1 sound level meter (SLM) that meets all appropriate International Electrotechnical Commission standards and is subject to annual calibration by an accredited laboratory; • The following acoustic indices should be recorded and reported – L_{Aeq} (T); L_{Aleq} (T); Statistical noise level L_{A90}; L_{Amin} and L_{Amax}; Octave band or 3rd octave band frequency spectra; • The SLM should be located approximately 1.5m above ground and no closer than 3m to any reflecting surface; • Efforts should be made to ensure that the measurements are not affected by residual noise and extraneous influences, i.e. wind, electrical etc.; • A detailed log and record should be kept. Records include	**X** **All recommendations made by the specialist has been incorporated throughout the S&EIR process**	**Section V on Page 44** of the Report – Environmental Impact Assessment and associated mitigation measures **Part B** – Environmental Management Programme

	site details, weather conditions during sampling and observations made regarding the acoustic climate of each site		
Wetland Delineation & Impact Assessment	**From the detailed study undertaken it was determined that the Tambotie OBDA 2 is situated in close proximity to the Crocodile River and associated riparian zone. The Tambotie West eastern boundary is situated approximately 170m west of the riparian zone edge associated with the Crocodile River. In addition to this the proposed Tambotie conveyor system will extend over the Crocodile River.** **Specific mitigation measures have therefore been proposed that will ensure that the mining activities at these orebodies and associated infrastructure do not negatively impact on the Crocodile Rive and associated features.** **The OBDA 2 (alternative 2) is situated in close proximity to the Crocodile River and associated riparian vegetation. As such it is recommended by the specialist that OBDA 1 (alternative 1) be the preferred alternative for implementation as it completely avoids this sensitive area.** **It is however important to note that no fatal flaws were identified for the project and therefore it is recommended that the project proceed with the implementation of the proposed mitigation measures as part of the EMPr.** <u>Specialist Recommendations:</u> • Aquatic biomonitoring and water sampling along the Crocodile River must be implemented prior to the commencement of the project to mine the Tambotie orebodies. Three sampling points have been recommended. The proposed timeline is to start mining the Tambotie orebodies in 30 years' time. It is therefore not necessary to implement the biomonitoring now; • The construction of the Tambotie conveyor system over the Crocodile River will require a WULA / GA process to be	**X** **All recommendations made by the specialist has been incorporated throughout the S&EIR process**	**Section V on Page 44** of the Report – Environmental Impact Assessment and associated mitigation measures **Part B** – Environmental Management Programme

	followed, depending on the final design layout of the facility; • The 1:100 year floodline will need to be determined specifically to inform the river crossing of the Tambotie conveyor system closer to the time of mining the Tambotie Ore body; and • Aquatic biomonitoring must be implemented prior to the commencement of the Tambotie mining operations		
Geohydrological Impact Assessment	**From the detailed study undertaken, thirty (30) groundwater features were identified comprising of 9 farm boreholes, 18 exploration core holes and 3 open boreholes that are not currently in use. The general site area is underlain by Dolomitic formations of the Malmani Subgroup, of the Chuniespoort Group, where this Malmani Subgroup fragment along the Crocodile River is known as the 'Assen Formation'.** **The area has an average groundwater depth of 14.75m below ground level, where the general flow direction is towards the North.** **Impacts associated with the proposed development and operation of the mining operations are limited to localised dewatering, potential for hydrocarbon spillages and impacts from domestic waste generation. It is important to note that no fatal flaws were identified for the project and therefore it is recommended that the project proceed with the implementation of the proposed mitigation measures as part of the EMPr.** <u>Specialist Recommendations:</u> • Borehole abstraction (if any) should be managed effectively and borehole water levels and abstraction volumes from borehole should be recorded at least weekly; • All staff and supervisors at workshops, yellow metal laydown areas and fuel storage areas should be trained in hydrocarbon spill response; • Each laydown area and / or fuel storage area should be equipped with the appropriate spill response kits, where any contaminated soil will need to be disposed of correctly at a	**X** **All recommendations made by the specialist has been incorporated throughout the S&EIR process**	**Section V on Page 44** of the Report – Environmental Impact Assessment and associated mitigation measures **Part B** – Environmental Management Programme

	suitable location; and • All domestic waste generated will need to be disposed of at a suitable landfill site along with proper housekeeping practices that should be maintained on site		

Attach copies of Specialist Reports as appendices **in Appendix F.**

o) Environmental impact statement

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

ALTERNATIVE 1 - Tambotie OBDA 1		
Impact	***Significance before mitigation***	***Significance after mitigation***
Construction Phase		
LOSS OF VEGETATION & FAUNAL DISPLACEMENT	low - negative	very low negative
DEGRADATION OF WATERCOURSE FEATURES	moderate - negative	very low negative
DESTRUCTION / DAMAGE TO HERITAGE RESOURCES	moderate - negative	very low negative
LOCALISED GROUNDWATER DEWATERING	low - negative	very low negative
GROUNDWATER & SURFACE WATER CONTAMINATION	low - negative	very low negative
CHANGE IN VISUAL AESTHETICS	low - negative	very low negative
INCREASED NOISE GENERATION	very low negative	very low negative
INCREASED OCCURRENCE AND SPREAD OF DISEASES (SOCIAL)	low - negative	very low negative
Operational Phase		
CHANGE IN VISUAL AESTHETICS	moderate - negative	very low negative
DEGRADATION OF AIR QUALITY CONDITIONS	low - negative	very low negative
INCREASED NOISE GENERATION	very low negative	very low negative
LOCALISED GROUNDWATER DEWATERING	Very low - negative	very low negative
DECREASE IN AGRICULTURAL POTENTIAL	moderate - negative	low - negative

ALTERNATIVE 2 - Tambotie OBDA 2		
Impact	***Significance before mitigation***	***Significance after mitigation***
Environmental impacts associated with Alternative 2 are similar to that of Alternative 1, with the exception of the following:		
Construction Phase		
DEGRADATION OF WATERCOURSE FEATURES	moderate - negative	low - negative
Operational Phase		
CHANGE IN VISUAL AESTHETICS	moderate - negative	low - negative

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 A**

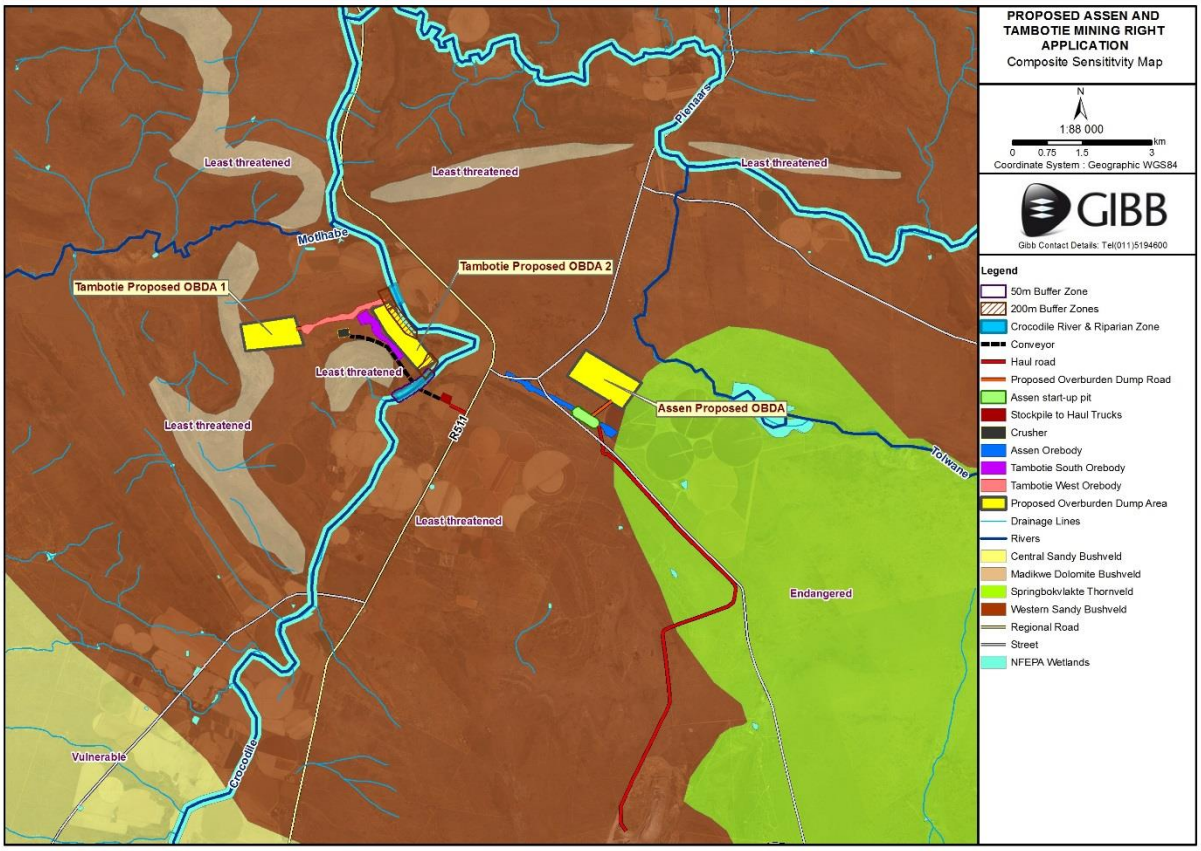


Figure 14: Composite Environmental Sensitivity Map with Final Site Layout

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

A detailed environmental impact assessment was undertaken for the project in order to establish the environmental sensitivities associated with the area and potential impact that the development may have on the receiving environmental conditions. It is envisaged that the development will have a positive impact on the socio-economic conditions of the surrounding area due to the fact that it will provide employment and training opportunities required for the various mining, blasting and drilling operations on site. This will inevitably contribute to economic upliftment of the local community and the greater region. In addition to this, the project will provide a secure and long term supply of limestone resource to the cement industry and ultimately lead to the increase in Gross Domestic Product (GDP) for the country which resembles the country's economic wealth and makes it more lucrative overall for foreign investment.

A variety of potential negative environmental impacts have been identified for the project which relates to nuisance factors (air, noise, traffic, visual), water quality degradation, loss of habitat, destruction of heritage resources, as well as a potential for increased spread of diseases. It should however be noted that with the implementation of the proposed mitigation measures the overall significance of the negative environmental impacts will range between low to very-low negative. The two Tambotie OBDA alternatives is expected to have similar environmental impacts on the receiving environment with the exception of the severity of impacts experienced on the visual aesthetics and watercourse features situated throughout the study area. Tambotie OBDA 2 (alternative 2) will have the greatest

environmental impact on the receiving environmental conditions due to the fact it is situated in close proximity to the Crocodile River with a high risk of water quality contamination and degradation of associated riparian vegetation; as well as due to the fact that the visual exposure of OBDA 2 will be significantly higher as compared to OBDA 1 (alternative 1) that is situated further away from the provincial roads extending in proximity to the study area.

From the environmental impact assessment undertaken for the project and associated alternatives, the EAP has formulated the key environmental consequences to aid the Department with decision making purposes. This implies that in making the decision to authorise the project, the Department accepts the key environmental consequences (as outlined below) and associated mitigation measures for implementation.

Please refer below for the key environmental consequences that needs to be taken into account for decision making purposes

Table 10: Key Environmental Consequences for Decision Making

Potential Environmental Cost	**LOSS OF HABITAT**	
Inherent risk	**MODERATE**	
Causes of risk	**Likelihood of causes**	
	OBDA 1	**OBDA 2**
Loss of Vegetation	Likely	Likely
Loss of Wetlands	Unlikely	Likely
Likelihood of consequence	**Unlikely but possible**	**Likely**
Residual risk	**Moderate**	**Moderate**

Potential Environmental Cost	**INCREASED MORBIDITY**	
Inherent risk	**High**	
Causes of risk	**Likelihood of causes**	
	OBDA 1	**OBDA 2**
Increase in HIV/AIDS/STDs	Likely	Likely
Likelihood of consequence	**Likely**	**Likely**
Residual risk	**High**	**High**

Potential Environmental Cost	**NUISANCE**	
Inherent risk	**MODERATE-LOW**	
	OBDA 1	**OBDA 2**
Noise	Definite	Definite
Visual	Likely	Definite
Dust Generation	Likely	Likely
Likelihood of consequence	**Unlikely but possible**	**Definite**
Residual risk	**Low**	**Moderate**

Potential Environmental Cost	LOSS OF HERITAGE RESOURCES WITH CULTURAL SIGNIFICANCE	
Inherent risk	**MODERATE**	
Causes of risk	**Likelihood of causes**	
	OBDA 1	***OBDA 2***
Construction and excavation activities on site	Likely	Likely
Likelihood of consequence	**Unlikely but possible**	**Unlikely but possible**
Residual risk	**Moderate**	**Moderate**

p) 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.

PLEASE REFER TO SECTION N ABOVE FOR THE SPECIALIST RECOMMENDATIONS. PLEASE NOTE THAT THE EMPR AS DETAILED BELOW MUST BE A LEGALLY BINDING DOCUMENT AND SHOULD BE IMPLEMENTED ACCORDINGLY.

q) Final proposed alternatives.

(Provide an explanation for the final layout of the infrastructure and activities on the overall site as shown on the final site map together with the reasons why they are the final proposed alternatives which respond to the impact management measures, avoidance, and mitigation measures identified through the assessment)

Based on the information obtained as part of the environmental impact assessment and associated mitigation measures, the EAP considers Tambotie OBDA 1 (alternative 1) to be the preferred site alternative for the project as it allows for the various benefits associated with the project to be realised whilst at the same time having the smallest impact on the receiving environmental conditions. Alternative 1 is not situated in close proximity to the Crocodile River and associated riparian vegetation, which implies that the risk for water contamination and riparian vegetation degradation is very low as compared to Tambotie OBDA 2 (alternative 2). A 200m bufferzone has been allocated to the section of the Crocodile River situated in proximity to the Tambotie West Ore body which will need to be enforced and maintained throughout the development activities. In addition to this, the visual exposure for alternative 2 is much higher compared to alternative 1 due to the fact that OBDA 2 is situated close to the R511 with the maximum stack height of the OBDA reaching 15m.

Furthermore, it is important to note that the Tambotie conveyor system will be developed as such to span over the Crocodile River and have the smallest possible footprint within the delineated 50m bufferzone (as far as practically possible). A variety of potential negative environmental impacts have been identified for the project which relates to nuisance factors (air, noise, traffic, visual), water quality degradation, loss of habitat, destruction of heritage resources, as well as a potential for increased spread of diseases. It should however be noted that with the implementation of the proposed mitigation measures the overall significance of the negative environmental impacts will range between low to very-low negative.

Based on the information provided above, the EAP recommends that the development proceed with Alternative 1 (OBDA 1) being the preferred alternative along with the effective implementation of all mitigation measures provided as part of the EMPr.

r) Aspects for inclusion as conditions of Authorisation.

Any aspects which have not formed part of the EMPr that must be made conditions of the Environmental Authorisation

Please refer below for the additional management aspects to be included in the conditions of the Environmental Authorisation, should the project be authorised:

- The EMPr is a legally bounding document and must be implemented throughout the project lifetime;
- No developments may take place within the Crocodile River and delineated bufferzones with the exception of the conveyor belt system;
- An independent ECO will need to be appointed to ensure the compliance with the EMPr; and
- A Water Use Licence must be obtained for all triggered water use activities forming part of the project, prior to construction.

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

(Which relate to the assessment and mitigation measures proposed)

Please refer below for the list of assumptions and limitations forming part of this report:

- Impacts and assumptions made with regards to the Tambotie orebody and associated infrastructure (haul road, OBDA, stockpile area etc.) are made on the current status quo of the area. However, taking into consideration that the Tambotie mining operations will only commence in 30 years (as per the Life of Mine) the status quo may change by the time of development;
- Final designs for the Tambotie conveyor system was not available at the time of assessment. However, a conservative approach was followed to ensure that the footprint of the conveyor system remains as small as possible (as far as practically possible) and is situated outside the Crocodile River system;

<u>Visual Impact Assessment:</u>

- In order for the VIA to be conducted, a maximum height of 15m was assigned (as provided by PPC) to the proposed OBDA's. Furthermore, vegetative cover was not taken into account in the generation of the Digital Elevation Model (DEM) which implies that the visual impact illustrates the worst case scenario;

<u>Air Quality Impact Assessment:</u>

- The air quality impact associated with the roads were modelled as an exaggeration of actual conditions due to a number of factors namely; the roads where modelled as not being wetted and the EPA emission factor over exaggerates emissions. Therefore the emissions predicted for the development of the Assen / Tambotie Mine illustrates the worst case scenario;
- Wet deposition has not been modelled as part of this assessment, therefore implying that the effects of atmospheric scrubbing from precipitation have not been simulated;

<u>Heritage Impact Assessment:</u>

- The assessment was influenced by the unpredictability of buried archaeological remains and the difficulty in establishing intangible heritage values. Archaeological deposits usually occur below the ground level. Should any artefacts or skeletal material be revealed during construction, then all activities will need to be halted and the competent be notified;
- The field survey did not include any form of subsurface inspection beyond the inspection of burrows, road cut sections, and the sections exposed by erosion or field ploughing. The proposed mining infrastructure will be limited to specific right of corridors as detailed in the development layout;
- The construction team will need to provide link and access to the road servitude, where service sites will use the existing access roads;
- No excavations or sampling were undertaken, due to the fact that a permit from heritage authorities is required to disturb a heritage resource. As such, the results of the assessment are based on indicators

observed on surface. Furthermore, the study did not include any ethnographic and oral historical studies nor did it investigate the settlement history of the area;

Noise Impact Assessment:

- The quantification of sources of noise was restricted to activities associated with the Assen and Tambotie orebodies, overburden dump areas, haul roads, crusher and conveyor system. Routine noise impacts from operations were estimated and simulated;
- In the absence of detailed mining fleet information, it was assumed that in addition to mine vehicles, drill rigs, excavators, loaders, dozers and graders will be used;
- In the absence of on-site meteorological data, use was made of simulated data for Northam;

Geohydrological Impact Assessment:

- Aquifer parameters such as transmissivity and storage were taken from literature and aquifer tests conducted at the site by Rison (2011) are assumed to be applicable to the site environment;
- Recharge values were taken from literature and previous studies at the site. The values are assumed to be applicable to the site environment;
- There will be no waste storage infrastructure at the site (e.g. waste rock dump, tailings storage facility etc.), thus no contaminant transport modelling was done for the site;
- It was assumed that mining would commence in January 2018 for a period of fifty (50) years with Assen being mined for thirty years followed by Tambotie for twenty years;
- No mine plans for the Tambotie deposits were available for the numerical modelling, thus the mine was simulated by assigning drain cells to the mining depth across the full extent of the mining area and average daily inflows over the life of mine were calculated;
- The complexities of fractured rock aquifers imply that the model can only be used as a guide to determine the order of magnitude of dewatering and contaminant transport; and
- The interpretation of modelled results should be based on the assumptions the model was built on and actual results will vary as unknown aquifer conditions and parameters vary in the natural system.

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

It has been illustrated that with the implementation of the proposed mitigation measures and EMPr, all identified environmental impacts can be mitigated to acceptable levels, thus allowing the proposed development to proceed. The environmental impacts associated with the two OBDA site alternatives are very similar, with only a few differences in significance for some identified impacts. It is important to note that no fatal flaws were identified with either one of the alternatives. Alternative 1 (OBDA 1) is however situated further away (as compared to alternative 2) from the Crocodile River and outside any riparian vegetation, therefore implying that the risk for water contamination and degradation of riparian vegetation being very low. In addition to this, alternative 1 is also situated further away from any visual receptors (as compared to alternative 2) therefore implying that the impact on visual aesthetics resulting from the OBDA (with a maximum height of 15m) being significantly lower compared to alternative 2. All impacts associated with alternative 1 can be mitigate to constitute an overall significance of very-low negative post mitigation.

Based on the information provided above, it is the EAP's recommendation that the proposed development be authorised by the Department with the implementation of site alternative 1 and associated mitigation measures forming part of the EMPr.

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

Please refer to Section P above.

It is envisaged that the development will have a myriad of positive impacts on the socio-economic conditions of the surrounding area due to the fact that it will provide employment and training opportunities required for the various mining, blasting and drilling operations on site. This will inevitably contribute to economic upliftment of the local community and the greater region. In addition to this, the project will provide a secure and long term supply of limestone resource to the cement industry and ultimately lead to the increase in Gross Domestic Product (GDP) for the country which resembles the country's economic wealth and makes it more lucrative overall for foreign investment.

The positive benefits that will result from the implementation of the project far outweigh the potential negative impacts to the receiving environment. With the implementation of the proposed mitigation measures and EMPr, the potential impacts can be mitigated to very-low negative significance. Therefore, it is the EAP's recommendation that the proposed development be authorised by the Department with the implementation of site alternative 1 and associated mitigation measures forming part of the EMPr.

ii) Conditions that must be included in the authorisation

a. Specific conditions to be included into the compilation and approval of EMPr

PLEASE REFER TO THE EMPR BELOW

b. Rehabilitation requirements

PLEASE REFER TO THE EMPR BELOW

u) Period for which the Environmental Authorisation is required.

The EA is required for a period of 5 years.

v) 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, Tashriq Naicker, 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 EIA Report and the EMPr.

w) Financial Provision

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

The financial provision for the rehabilitation in terms of this closure plan will be set aside using the closure cost assessment framework provided for by the Department of Mineral Resources. The master rates used in the assessment are the master rates provided by the DMR and escalated annually with the CPI. A summary of the master rates is provided in **Appendix 1 of the closure report**. The closure costs will be reviewed annually within the budget cycle.

The total rehabilitation cost estimate for the mining operation over a period of 50 years has been estimated at R 50 794 971 (excl VAT). Annually this will equate to an average of R1 015 899 per year, giving a progressive 10 year total of R 10 158 994 (as stipulated in the Mine Works Programme).

The total closure costs for the site over a LOM of 50 years is calculated to be **R 50 794 971 (excl VAT)**.

i) Explain how the aforesaid amount was derived.

The financial provision for the rehabilitation in terms of this closure plan will be set aside using the closure cost assessment framework provided for by the Department of Mineral Resources. The master rates used in the assessment are the master rates provided by the DMR and escalated annually with the CPI. A summary of the master rates is provided in **Appendix 1 of the closure report**.

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).

Please refer to the Mining Work Programme for confirmation of financial competence.

x) Deviations from the approved scoping report and plan of study.

i) Deviations from the methodology used in determining the significance of potential environmental impacts and risks.
(Provide a list of activities in respect of which the approved scoping report was deviated from, the reference in this report identifying where the deviation was made, and a brief description of the extent of the deviation).

There were no deviations from the approved methodology as part of the Final Scoping Report

ii) Motivation for the deviation.

There were no deviations from the approved methodology as part of the Final Scoping Report

y) Other 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:-

a. 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 **Appendix** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

It is important to note that PPC owns the property on which the proposed mining operations will take place for the first 30 years (Assen). Landowner negotiations will occur with the Landowner of the Farm Tambotie should the DMR grant the mining right. Furthermore, it is envisaged that the development will have a myriad of positive impacts on the socio-economic conditions of the surrounding area due to the fact that it will provide employment and training opportunities required for the various mining, blasting and drilling operations on site. This will inevitably contribute to economic upliftment of the local community and the greater region. In addition to this, the project will provide a secure and long term supply of limestone resource to the cement industry and ultimately lead to the increase in Gross Domestic Product (GDP) for the country which resembles the country's economic wealth and makes it more lucrative overall for foreign investment.

b. 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** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

There are no impacts on heritage resources that have not been mitigated.

z) 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 an **Appendix)**.

Two site alternatives have been identified and assessed for the location of the OBDA associated with the Tambotie orebody. It is important to note that no fatal flaws were identified for the implementation of the project with either one of the alternatives. The alternatives assessed were deemed feasible for implementation by the applicant, where the results from the detailed environmental impact assessment indicate that Alternative 1 (OBDA 1) will have the smallest environmental impact (ecological footprint) on the receiving sensitive environmental conditions. As such, alternative 1 is the preferred option for implementation.

The positive benefits that will result from the implementation of the project far outweigh the potential negative impacts to the receiving environment. With the implementation of the proposed mitigation measures and EMPr, the potential impacts can be mitigated to very-low negative significance. Therefore, it is the EAP's recommendation that the proposed development be authorised by the Department with the implementation of site alternative 1 and associated mitigation measures forming part of the EMPr.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

a) Draft environmental management programme.

ii) 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).

Name of Consultant:	: GIBB (Pty) Ltd
Contact person:	Mr Tashriq Naicker
Physical Address:	Podium at Menlyn Ground Floor 43 Ingersol Road, Menlyn
Postal Address:	P.O. Box 35007, Menlo Park, 0102
Tel:	012 471 89183
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iii) 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 Impact Assessment Methodology as well as the identified Impacts that the proposed project may have on the environment has been included in Section 1 (h) of Part A above.

iv) 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)

Please refer to Appendix A for a Composite Environmental Sensitivity Map of the project.

v) Description of Impact management objectives including management statements

a. Determination of closure objectives.

(ensure that the closure objectives are informed by the type of environment described in 2.4 herein)

The EMPr provides the following broad closure vision:

- The post mining land of disturbed footprint, excluding the pits will be restored to arable and or grazing conditions as far as practicable.
- Rehabilitation will restore surface mining areas to pre-mining mining land capability as far as practical to its original 'grass land' production potential.

The closure objectives to achieve this are detailed in **Table 11.**

Table 11: Closure objectives

Closure objective	Closure criteria
Ensure physical stability and public safety of mine areas	• Opencast pit highwalls will be cut back by 10 meters and graded to a 1:3 slope. • Rehabilitated overburden rockdump will remain in situ and slopes will not exceed 1:5. • All mine related infrastructure to be dismantled and removed. • All disturbance footprint to be topsoiled, seeded and revegetated to ensure stability
Restore pre-mining land use to grazing potential	• Opencast mining pits will remain and grazing potential can't be restored • All disturbance footprints to be rehabilitated per standard to ensure sustainable indigenous veld grass is established.
Ecological biodiversity	• Post closure rehabilitation is stable to ensure Crocodile river is not impacted from erosion • Grassland diversity is re-established.

All infrastructure will be removed, however future monitoring boreholes will remain where required.

b. The process for managing any environmental damage, pollution, pumping and treatment of extraneous water or ecological degradation as a result of undertaking a listed activity.

The following measures provide guideline solutions to frequently anticipated issues on most development activities:

- The prevention of any site degradation due to non-compliance, administrative or financial problems, and inactivity during the construction phase, illegal activities, delays caused by archaeological finds etc. is ultimately the responsibility of the applicant/developer. Section 28, National Environmental Management Act, 1998 (Act No. 107 of 1998) [NEMA].
- The study area must be clearly defined according to the project authorisation. All workforce members and other construction personnel are not to go beyond the designated footprint.
- The Contractors must adhere to agreed and approved access points and haul roads.
- No camping is allowed on any private property without approval.
- Damage to private or public property such as fences, gates and other infrastructure may occur at any time. All damage to be repaired immediately and to the satisfaction of the owner.
- The Contractor must adhere to all conditions of contract including this EMPr.
- Proper planning of the construction process must be undertaken to allow for disruptions due to rain and very wet conditions.
- All private and public manmade structures near the project site must be protected against damage at all times and any damage must be rectified immediately.
- Proper site management and regular monitoring of site works.
- Proper documentation and record keeping of all complaints and actions taken.
- Regular site inspections and good control over the construction process throughout the construction period.
- A positive attitude towards Environmental Management by all site personnel must be motivated through regular and effective awareness and training sessions.
- An EO, on behalf of PPC, is responsible for the implementation of this EMPr. The EO and not the Contractor is to deal with any landowner related matters.
- Environmental Audits to be carried out prior, during and upon completion of construction.

c. Potential risk of Acid Mine Drainage.
(Indicate whether or not the mining can result in acid mine drainage).

Due to the fact that the proposed development involves open cast limestone mining, it is not envisaged that acid mine drainage will occur.

d. Steps taken to investigate, assess, and evaluate the impact of acid mine drainage.

Not Applicable

e. Engineering or mine design solutions to be implemented to avoid or remedy acid mine drainage.

Not Applicable

f. Measures that will be put in place to remedy any residual or cumulative impact that may result from acid mine drainage.

Not Applicable

g. Volumes and rate of water use required for the mining, trenching or bulk sampling operation.

It is important to note that water required for the mining operations and domestic use, will be sourced from the existing Beestekraal mine situated further south of the proposed Assen / Tambotie mining areas. However occasional dewatering of aquifers within the mining areas will be required as water from the underground resource seeps into the open cast mining pits. Dewatering at the mining pits should take place at a rate which will maintain a groundwater level of at least 5m below the active pit floor during all operations. The dewatering product should be used in the mining activities wherever possible, or discharged into the environment via natural channels or suitable temporary storage facility for future use.

h. Has a water use licence been applied for?

A Water use licence will be concurrently applied for with the mining right.

The Tambotie South ore body and OBDA alternative 2 are both situated within 500m of the Crocodile River. The proposed conveyor system will also extend over the Crocodile River. Furthermore, dewatering of the mining pits will need to be undertaken during the operational phase of the project.

As such, it is envisaged that the project will require a Water Use Licence (WUL) in terms of Section 21 (c), (i) and (j) of the National Water Act, 1998 (Act No. 36 of 1998). Please refer below tot Table 12 for the potentially triggered water uses with regards to the proposed development.

Table 12: Triggered Water Uses for the Project

Section 21 of NWA	Activity
(c)	Impeding or diverting the flow of water in a watercourse
(i)	Altering the bed, banks, course or characteristics of a watercourse
(j)	Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people

i. Impacts to be mitigated in their respective phases

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

ACTIVITIES (as listed in 2.11.1)	**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.
Excavating	pre-construction, Construction and operation		Dust control measures Noise control measures Storm water system		
Blasting	construction		access control measures		
Stockpiles	construction, operation and closure		Rehabilitation of disturbed land Dust control Measures Storm water system		
Loading, Hauling and Transporting	pre-construction, construction		Noise control measures Dust Control Measures		

	and operation				
Processing Plant	Construction and Operation		Rehabilitation of disturbed land Dust control Measures Storm water system Noise control Measures		
EMP to be updated and included in the Final EIR.					

PLEASE REFER TO PART A SECTION K AND PART B

j. 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.**

PLEASE REFER TO PART A SECTION K ABOVE.

IT SHOULD BE NOTED THAT THE STANDARD TO BE ACHIEVED FOR EACH IMPACT IS TO MITIGATE THE IMPACT TO AN ACCEPTABLE LEVEL SO THAT THE RESIDUAL RISKS ARE ACCEPTABLE.

k. 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)

PLEASE REFER TO PART A SECTION K ABOVE AND SECTION C BELOW.

b) Financial Provision

i) 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 Regulation 22 (2) (d) as described in 2.4 herein.

Please refer to the attached closure plan in Appendix I for detailed information.

The closure plan objectives are to return the sites to a condition as close as possible to its current land use once mining is completed. This is in line with the objectives as outline in the EIA regulations of 2014 (as amended) and the MPRDA.

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

All stakeholders, landowners and Interested and Affected Parties will be consulted during the Public Participation Process and their inputs with regards to the impacts of the proposed project on the receiving environment in relation to the closure have been included as part of this report. Please refer to the Comments and Response Report in Appendix E6.

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.

PLEASE REFER TO APPENDIX I FOR THE CLOSURE AND REHABILITATION PLAN.

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

The estimated Environmental Rehabilitation costs have been included in the total financial provisions for the proposed project.
The financial provision for the rehabilitation in terms of this closure plan will be set aside using the closure cost assessment framework provided for by the Department of Mineral Resources. The master rates used in the assessment are the master rates provided by the DMR and escalated annually with the CPI. A summary of the master rates is provided in **Appendix 1 of the Closure plan**. The closure costs will be reviewed annually within the budget cycle.

The total rehabilitation cost estimate for the mining operation over a period of 50 years has been estimated at R 50 794 971 (excl VAT). Annually this will equate to an average of R1 015 899 per year, giving a progressive 10 year total of R 10 158 994 (as stipulated in the Mine Works Programme). The total closure costs for the site over a LOM of 50 years is calculated to be **R 50 794 971 (excl VAT)**.

As outlined in the Closure and Rehabilitation Plan, the objective is to return the site to as close as possible land use prior to mining. There are a few aspects such as the OBDA and the pit itself where this will not be possible. The top bench of the pit will be sloped and fenced off so as to prevent unauthorised access to the site. The OBDA will be revegetated and sloped in terms of rehabilitation.

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

The estimated Environmental Rehabilitation costs have been included in the total financial provisions for the proposed project for the first 10 years as required by the Mining Works Programme:

Category	Cost Estimate
a) Progressive total for Rehabilitation	R 10 158 994.00
b) Cost to mitigate socio-economic conditions of directly affected persons	R 0.00
Total Cost	**R 10 158 994.00**

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

Please refer to the Mining Works Programme for financial competence and confirmation.

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

i) Monitoring of Impact Management Actions

ii) Monitoring and reporting frequency

iii) Responsible persons

iv) Time period for implementing impact management actions

v) 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
Project contract and programme Contingencies for minimising negative impacts anticipated to occur during the construction phase needs to be implemented. Ensure environmental awareness and formalise environmental responsibilities and implementation	**Project contract and programme**	(a) The EMPr must be included as part of the tender documentation thereby making it part of the enquiry document to make the recommendations and constraints, as set out in this document, enforceable under the general conditions of contract. (b) A copy of this EMPr must be available on site. The Contractor must ensure that all the personnel on site, sub-contractors and their team, suppliers, etc. are familiar with and understand the specifications contained in the EMPr.	**Proponent**	

Appointments and duties of project team	**Pro forma document and contracts**	(a) The contact details for the ECO, Contractor and SHE officer must be completed as part of the pro-forma documents and a copy kept on site. This document must be made available to the approving authority on request. (b) Subcontractor(s) contracts with the principle contractor must contain a clause to the effect that the disposal of all construction-generated refuse / waste to an officially approved dumping site is the responsibility of the subcontractor in question and that the subcontractors are bound to the management activities stipulated in this EMPr.	**Proponent**	**Once - off**
	Roles and responsibilities	Before construction activities commence, role players must have a clear indication of to their role in the implementation of this EMPr	**Proponent**	**Once - off**
Method Statements	**Method Statements**	(a) Certain method statement must be provided by the contractor. All activities which require method statements may only commence once the method statements have been approved by the engineer and or ECO as applicable. (b) Where applicable, the contractor will provide job-	**PM/ Contractor**	**Prior to commencing activities requiring method statements, on site.**

		specific training on an ad hoc basis when workers are engaged in activities, which require method statements		
Emergencies, non-compliance and communication	**Emergencies and communication**	(a) The contractor must provide method statements on the protocols to be followed, and contingencies to be put in place for the following potential incidents before construction may begin: Contamination of natural water resources from spills; contamination of soils from spills; and fire. (b) Communication in emergencies must follow the suggested lines of communication	**Contractor**	**On-going**
	Non-compliance	(a) The contractor understands that failure to adhere to the requirements of the EMPr will result in fines over and above the costs incurred for any remediation required as result of the specific non-compliance.	**Contractor**	**On-going**
Construction Camp set up (If Required) Careful planning of the construction camp can ensure that the time and costs associated with	**Layout**	(b) The choice of the Contractor's camp requires the Project Manager's permission and must ensure that the camp is located in an area that will ensure a minimum impact. (c) The contractor should submit plans of exact location, extent and construction details of the	**PM**	**Prior to moving on site**

environmental management and rehabilitation are reduced.		temporary construction camp facilities to the Project Manager for approval, prior to establishment of the camp. The layout plans should reflect the proposed camp's location in relation to any existing infrastructure (water mains, electricity cables, sewage mains, etc.) on site. Access to the construction camp must be through an existing route or one that is clearly demarcated and agreed upon. (d) The construction camp can comprise of the following (as required): a. Site office b. Ablution facilities c. Designated first aid area d. Eating area e. Storage areas		
	Ablutions	(a) Existing ablution facilities at the PPC Beestekraal site will be used as the base camp for the contractors. Temporary / portable facilities will be established on site as well. (b) No temporary facilities or portable toilets to be setup	**PM**	**Prior to moving on site**

		within 100m of any watercourse, including wetlands		
	Provision for camp waste disposal	(a) Bins and skips shall be provided at convenient intervals for disposal of waste within the construction camp/site. (b) Recycling and provision of separate waste receptacles for different types of waste should be encouraged.	**PM/Contractor**	**On-going**
Establishing storage areas Storage areas can be hazardous and unsightly. These storage areas can also cause environmental pollution if not designed and managed properly.	**General Substances and Materials**	(a) When deciding on the location of temporary stockpiles, the following needs to be considered: • road access, • length of time the stockpile will exist. (b) Additionally all stockpiles should be located away from sensitive ecosystems and protected from the prevailing winds. (c) Storage areas must be designated, demarcated and fenced if necessary. (d) Storage areas should be secured, to minimize the risk of crime and contamination. (e) The stockpile area for the ore may not be within 100m of the riparian zone of the Crocodile River.	**EO/ECO approval**	**During site set up.**

	Hazardous Substances and Materials	(a) Fuel must be stored in a bunded area with at least a volume of 110% of the largest tank. (b) No smoking shall be allowed in the vicinity of the fuel storage area. Erect at least one no-smoking warning sign, which is clearly visible at the fuel storage area, to warn all staff of associated dangers. (c) Provide adequate firefighting equipment at or close to the fuel storage and dispensing area(s). (d) Keep fuel under lock and key at all times. (e) Hazardous chemical working/ refuelling areas must be bunded with an impermeable liner. (f) Ensure that there is always a supply of absorbent material readily available to absorb/break down any hydrocarbon spillage. (g) In the case of a spill, contaminated material must be removed from the site as soon as possible and disposed of at an appropriate hazardous waste facility.	**EO/ECO approval**	**During site set up**
Education of site staff on general Environmental	**Environmental Education and Awareness**	Ensure that all site personnel have a basic level of environmental	**EO/ECO**	**During staff induction**

Conduct These points must be communicated to all staff before the project commences on site		awareness training. Topics covered should include: (a) What is meant by 'Environment'? (b) Why do we have to protect the environment? (c) How construction activities can impact on the environment. (d) How can these impacts be mitigated. (e) Awareness of emergency and spills response provisions. (f) Social responsibility during construction e.g. being considerate to local residents. It is the contractor's responsibility to provide the site foreman with no less than 1 hour's environmental training and to ensure that the foreman has sufficient understanding to pass the information onto the construction staff. (a) Translators are to be used where necessary. (b) The use of pictures and real-life examples is encouraged as these are easier to remember. (c) The need for a 'clean site' policy also needs to be explained to the construction		

		workers.		
	Worker Conduct on Site	Under no circumstances may open areas or surrounding bush be used as toilet facilities. A general regard for the social and ecological well-being of the site and adjacent areas is expected of the site staff. Workers need to be made aware of the following general rules: (a) No alcohol/drugs to be present on site. (b) No fire arms allowed on site or in vehicles transporting staff to/from the site (unless by security personnel)/PPC policy will be implemented in this regard. (c) Construction staff is to make use of facilities provided for them, as opposed to ad hoc alternatives. (d) Train departmental heads in the managing of water balance, water pollution and water conservation within their sectors (e) Train all employees in the implementation of standard operating procedures (SOP's) (e.g. hydrocarbon management, sewerage plant management, monitoring and	**PM/Contractor**	**During staff induction, followed by on-going monitoring.**

		record keeping (f) Mechanisms shall be created and implemented to provide information and raise awareness among employees, customers and suppliers and other stakeholders to enhance knowledge and understanding of water resources, aquatic environments and conservation issues (g) Reduce operational activities to daylight hours in order to reduce lighting impacts. Should operations continue during night time, ensure careful and strategic placement of lights.		
Water Quality Incorrect disposal of substances and materials and polluted run-off can cause serious negative impacts on surrounding water resources.	**Water Quality**	(a) Equipment and machinery must be in good operating condition, clean (power washed), free of leaks, excess oil and grease. (b) Ensure that machinery is operated by a skilled driver who has been trained to use it correctly and who will be able to identify if something is wrong with the engine and conduct regular inspections identifying engine related leaks. (c) Proper stormwater management plans and erosion plans should be	**EO/ECO**	**During site set up.**

		compiled and implemented. (d) A Water Use Licence Application (WULA) will be required for the conveyor belt system across the river. (e) Proper caging and support are required along the conveyor belt system, where it crosses the Crocodile River to completely prevent any debris, soil, ore, etc. from the into the river. This caging must be extended past the riparian zone of the river. (f) The stockpile area for the ore may not be within 100m of the riparian zone of the Crocodile River. (g) Any direct or indirect impacts on the Crocodile River resulting from any activities at or form the conveyor belt and stockpiling must be monitored continually and rectified immediately. Such impacts include, but not limited to; siltation, erosion, spillage, destruction of riverbanks, etc. (h) A 200m bufferzone to be maintained between the edge of the demarcated ore body area and the edge of the riparian zone of the Crocodile River. (i) The water should be		

		discharged away from the pit in a manner that is interactions that' may cause a deterioration in water quality. (j) The simulated groundwater inflows into the mine workings are minimal and could be sufficiently controlled using a sump pump where the water is evacuated from the pit and discharged. A dedicated in-pit sump should be included in the mine planning and should extend 5-10 m ahead of mining, with a capacity of 800 m^3 to allow for direct rainfall and groundwater inflows. (k) Dewatering at the pit should take place at a rate which will maintain a groundwater level at least 5 m below the active pit floor during all operations. The dewatering product should be used in the mining activities wherever possible, or discharged into the environment or suitable storage facility. (l) Make one individual person at a management level responsible for the management of the overall mine water balance. (m) Open pit water dewatering will take place using in pit sumps;		

		(n) Implementation a ground water monitoring program, which includes; Groundwater levels and quality; in pit water quality (i.e. at the sump) (o) In pit water quality and discharge quality and volume		
Set up of waste management activities	**Waste management**	(a) A dedicated area must be allocated for waste sorting and storage. (b) Individual waste skip or wheelie bins for different types of waste should be provided (if none currently exist).	**EO/ECO**	**During site set up**
Security and safety	**Risk Associated with materials on site**	(a) Material stockpiles or stacks such as cement, steel, bricks, corrugated iron sheeting, plastic piping, etc. must be stable and well packed to avoid collapse and possible injury to site workers, stockpiles must also be covered to avoid seepage and ground water pollution (where applicable). (b) No materials are to be stored in unstable or high risk areas such as in close proximity of the entrance road, excavated areas, etc.	**PM/Contractor**	**On-going**
Site Access	**Access to the site**	(a) Acces from the existing secondary dirt road will be used to Access the Assen Ore body until PPC construct their	**Proponent**	

		own haul road to the Beestekraal Mine. The Access to the Haul road across the public dirt road must be well maintained and established by means of access control. The public utilising this road have right of way.		
Maintenance of construction camp	**Ablution**	(a) Temporary / Portable ablution facilities will be established on site. (b) No temporary facility or portable toilets to be setup within 100m of any watercourse, including wetlands	**Proponent**	**As per PPC current procedures**
	Eating Areas	(a) Eating areas should be serviced and cleaned regularly to ensure the highest possible standards of hygiene and cleanliness. (b) All litter throughout the site should be picked up and placed in the appropriate recycling bins provided.	**Contractor**	**Weekly inspection**
	Housekeeping	The contractor shall ensure that his camp and working areas are kept clean and tidy at all times.	**Contractor**	**Weekly**
Staff Conduct	**Environmental Education and Awareness / Safety**	(a) The contractor must monitor the performance of construction workers to ensure that all the topics that where	**Contractor**	**Daily**

		covered in the induction meeting is properly understood, and followed. (b) Make all employees aware of water conservation/ water demand management; water pollution avoidance and minimization measures, and reporting procedures and registry of incidents. (c) Train departmental heads in the managing of water balance, water pollution and water conservation within their sectors (d) Train all employees in the implementation of standard operating procedures (SOP's) (e.g. hydrocarbon management, sewerage plant management, monitoring and record keeping (e) Mechanisms shall be created and implemented to provide information and raise awareness among employees, customers and suppliers and other stakeholders to enhance knowledge and understanding of water resources, aquatic environments and conservation issues.		
Waste Management	**On-site waste management**	(a) Waste is grouped into "general" or "hazardous",	**Contractor/EO/PM**	**During the start-up of construction on site and on-**

Activities in the construction site such as office work, usage of construction materials, etc., generate different types of waste that requires to be managed properly. These wastes could result in environmental pollution such as soil contamination/ pollution or health hazards to employees working on-site, if not managed properly.		depending on its characteristics. The classification determines the handling methods and the ultimate disposal of the material. The Contractor/ECO / (EO) must classify waste into general or hazardous based on the toxicity or hazard nature of waste. (b) Waste must be placed in the designated or marked skips/bins which must be emptied on a regular basis by a contracted waste collector. These should remain within the demarcated areas and should be designed to prevent refuse from being blown out by wind. (c) Separation of waste and recycling of paper, glass, cans, scrap, metals, plastic bottles, etc., must be considered prior to disposal. The disposal at the landfill site should be considered as the last option, after having taken into consideration the prevention of waste generation, reduction waste generation, reuse and recycling. (d) Hazardous waste that require disposal (oily rags, used fuel/oil, etc.) must be placed in a suitable leak proof skip or		**going thereafter.** **During waste collection** **Prior to signing an agreement with the waste removal contractor.**

		wheelie bin for disposal at an approved hazardous waste disposal facility. (e) The contractor is responsible for arranging the removal of all waste from site generated through construction activities. Waste must be removed to a registered, appropriate disposal and recycling facilities. (f) No burning and littering of waste on site should be allowed. (g) Request the following from the waste contractors that are used to collect waste: • Copies of the weighbridge receipt from the waste removal contractor for all waste collected on site.		
Dangerous and toxic materials This section aims to provide measures to prevent pollution of soil, surface and ground water resources in the immediate and surrounding environments. It also proposes measures to minimise the chances of transgression of the acts	**Provision of storage facilities**	(a) Materials such as fuel, oil, must be sealed and stored in bermed areas or under lock and key, as appropriate, in well-ventilated areas. (b) Sufficient care must be taken when handling these materials to prevent pollution. Training on the handling of dangerous and toxic materials must be conducted for all staff prior to the commencement of construction.	**Contractor**	**On-going/ daily**

controlling pollution		(c) In the case of pollution of any surface or groundwater, the Regional Representative of the Department of Water and Sanitation (DWS) must be informed immediately. (d) Storage areas must display the required safety signs depicting “no smoking”, No Naked lights” and “Danger” containers must be clearly marked to indicate contents as well as safety requirements. (e) The contractor must supply a method statement for the storage of hazardous materials at tender stage. (f) Material Safety Data Sheets (MSDS) must be prepared for all hazardous substances on site and supplied by the supplier where relevant. MSDS’s must be updated as required.		
Bulk storage of fuels and oils (as applicable) This section aims to provide measures to prevent pollution of soil, surface and ground water resources in the immediate and surrounding environments. It also	**Bulk storage of fuels and oils**	(a) The contractor must provide and maintain a method statement for “Diesel tanks and refuelling procedures”. (b) Bulk fuel storage tanks on the site must be on an impervious surface that is bunded and able to contain at least 110% of the volume of the tanks. The filler tap must be inside the	**Contractor**	**Once of as required**

proposes measures to minimise the chances of transgression of the acts controlling pollution.		bunded area where possible and the bund wall must not have a tap or valve. (c) The bunded area should have a water/ fuel sump separator. (d) A Flammable Liquid License must be obtained for diesel volumes greater than 200 litres. (e) Bulk fuel storage tanks must be located in a portion of the construction camp where they do not pose a high risk in terms of water pollution (i.e. they must be located away from water courses and drainage lines) (f) Bulk fuel storage tanks must be placed so that they are out of the way of traffic, so that the risk of the tanks being ruptured or damaged by vehicles is minimised. (g) Bulk fuel storage areas should be covered during the rainy season. (h) No fuel storage, refuelling, vehicle maintenance or vehicle depots should be allowed within 30 m of the edge of any wetlands or drainage lines. (i) Refuelling and fuel storage areas, and areas used for the servicing or parking of vehicles and machinery, should be		

		located on impervious bases and should have bunds around them. Bunds should be sufficiently high to ensure that all the fuel kept in the area will be captured in the event of a major spillage.		
Use of dangerous and toxic materials This section aims to provide measures to prevent pollution of soil, surface and ground water resources in the immediate and surrounding environments. It also proposes measures to minimise the chances of transgression of the acts controlling pollution.	**Use of dangerous and toxic materials**	(a) The contractor must keep the necessary materials and equipment on site to deal with spills/ fire of the materials present should they occur. (b) The contractor must set up a procedure (which will be stipulated in a method statement) for dealing with spills/ fire, which will include notifying the ECO and the relevant authorities prior to commencing with construction. These procedures must be developed with consultation and approval by the appointed EO. (c) A record must be kept of all spills and the corrective action taken. (d) It must be ensured that all hazardous storage containers and storage areas comply with the relevant SABS standards to prevent leakage.	**Contractor**	**As required**
Stockpile handling	**Stockpiles**	(a) All stockpiled material must be easily accessible without any	**Contractor**	**On-going/ daily**

Stockpiles need to be managed in accordance with the outlined specifications in order to minimise the scarring of the soil surface and land features, disturbance and loss of soil, construction footprint, sedimentation of nearby drainage lines; maintain the integrity of the topsoil for landscaping, containment of invasive plant growth as well as the contamination of storm water run-off.		environmental damage. (b) All temporarily stockpiled material must be stockpiled in such a way that the spread of materials are minimised. (c) The stockpiles may only be placed within the demarcated areas the location of which must be approved by the ECO. (d) The contractor must avoid all clearly marked vegetated areas that will not be cleared. (e) Storm water run-off from the stockpile sites and other related areas must be directed into the storm water system with the necessary pollution prevention measures such as silt traps and may not run freely into the immediate and surrounding environments. (f) Stockpiles are to be stabilised if signs of erosion are visible. (g) During construction, all materials and stockpiles will be covered with tarps to prevent erosion, as well as dust arising from it, and to mitigate the visibility thereof (where required and as directed by the ECO). (h) Soils from different horizons must be stock piled such that topsoil stockpiles do not get contaminated by sub-soil		

		material. (i) Topsoil stockpiles must be clearly demarcated as no-go areas. (j) Any temporary storage or accommodation facilities to be set up in existing built up areas or disturbed areas only. (k) The stockpile area for the ore may not be 100m of the riparian zone of the Crocodile River. (l) Overburden stockpile to be vegetated and stabilised		
Fire Management This section aims to provide measures to minimise the destruction of natural fauna and flora as well as maintain the general safety on site.	**Fire management**	(a) The contractors must provide and maintain a method statement for "fires", clearly indicating where and for what fires will be utilised plus details on the fuel to be utilised (b) Absolutely no burning of waste is permitted. (c) No open fires permitted on site at any time. (d) No wood is to be collected, chopped or felled for fires from private or public property as well as from no-go or sensitive areas within the site and any surrounding natural vegetation. (e) Employ a fire officer for on-site control. (f) Fire-fighting equipment to be kept on site and serviced	**Contractor**	**On-going/ daily**

		regularly.		
Fauna and flora This section aims to provide measures to minimise the disturbance to animals.	**Fauna management**	(a) All activities on site must comply with the regulations of the Animals Protection Act, 1962 (Act No. 71 of 1962), as amended. (b) All construction workers must be informed that the intentional killing of any animal is not permitted as faunal species are a benefit to society. Poaching is illegal and it must be a condition of employment that any employee caught poaching will be dismissed. Employees must be trained on how to deal with fauna species as intentional killing will not be tolerated. In the case of a problem animal e.g. a large snake, a specialist must be called in to safely relocate the animal if the EO or ECO is not able to. (c) Environmental induction training and awareness must include aspects dealing in safety with wild animals into and on site. Focus on animals such as snakes and other reptiles that often generate fear by telling workers how to move safely away and to whom to report the sighting. Workers	**Contractor**	**On-going/ daily**

This section aims to provide measures to minimise the disturbance to vegetation, prevent litigation concerning removal of vegetation, encourage natural habitat fauna, minimise scarring of the soil surface and land features, minimise disturbance and loss of topsoil as well as the risk of fauna and flora destruction.		should also be informed where snakes most often hide so that they can be vigilant when lifting stones, etc. (d) Vegetation clearance should be conducted systematically to allow fauna to move away. (e) Construction activities and vehicle traffic should be restricted to daylight hours when the majority of faunal species are inactive. (f) Sensitive habitats that include riparian areas, floodplains, rocky habitat, ridges, wetlands and other sensitive sites should be avoided as far as is possible.		
	Flora management	(a) Trees and natural vegetation or any other natural features inside and outside the work area, which will not be cleared for construction purposes as indicated by the ECO, must be clearly demarcated and not be defaced, removed, painted for benchmarks or otherwise damaged, even for survey purposes. The latter can only be done if stipulated in the Environmental Authorisation and must be overseen by the EO and ECO. Any feature defaced by the contractor must	**Contractor**	**As and when required**

		be reinstated to the satisfaction of the ECO and penalties/fines may be imposed by the ER. (b) The contractor must rehabilitate any disturbed areas once construction activities have terminated for e.g. by removing all contaminated soils. The crew camp during construction must be located in an area that will be developed to impervious surfaces after construction, so as to ensure that natural vegetation cover is not disturbed. A method statement must be provided and maintained by the contractor. (c) Once construction is complete, rehabilitation of un-built areas must be undertaken in order to restore the aesthetic & ecological value of the area. It is recommended that the ECO be consulted with regard to the most appropriate rehabilitation vegetation and structures. Active re-vegetation must take place with locally indigenous vegetation under the supervision of the ECO. (d) No open fires shall be allowed on site under any circumstances, fires will only be permitted in adequate		

		facility within the crew camp, Forest Act, 1984 (Act No. 122 of 1984). (e) Vegetation should be removed only where construction is to take place. (f) Should any sensitive species be found, management measure should be adopted for the species and fenced if applicable. (g) Sensitive plant species should be removed and relocated from points of direct impact before construction starts. (h) Sensitive habitats that include riparian areas, floodplains, rocky habitat, ridges, wetlands and other sensitive sites should be avoided as far as is possible. (i) A strategy must be developed prior to construction to prevent the spread and dispersal of alien plants. (j) No protected tress may be removed without the necessary permits, erosion plan to be implemented and monitored; (k) No riparian vegetation immediately outside of the belt servitude may be removed; (l) Ensure that vegetation is not unnecessarily removed during the construction period.		

		Maintain as much natural vegetation around the site as possible (m) Reduce the construction period through careful logistical planning and productive implementation of resources; (n) Reduce construction activities to daylight hours in order to reduce lighting impacts; and (o) Rehabilitate all disturbed areas immediately after construction (p) Ensure that vegetation is not unnecessarily removed during the construction period. Maintain as much natural vegetation around the site as possible; (q) Ensure that vegetation is not unnecessarily removed during the construction period. Vegetation bordering the OBDA, conveyor and service roads should not be removed in order to reduce visual exposure. (r) Identify sensitive viewer locations from where the clearance of vegetation next to the OBDAs is highly visible, and identify patches of vegetation or individual trees that can be used as landscaping features.		

Wetland and Riparian Features This section aims to provide measures to minimise the damage caused by construction activities on the various riverine and wetland features found throughout the study area.	**Footprint Management**	(a) Limit the footprint area of the construction activities to what is absolutely essential in order to minimise environmental damage, especially where encroach upon the wetland boundary. Construction vehicles must use existing roads where possible. (b) During construction all construction materials should be kept out of the wetland areas as well as any active stream channels; (c) In any areas where disturbance of banks or wetland vegetation occurs, bank and bed profile should be re-instated in such a way as reinstate predevelopment habitat conditions (d) Keep all demarcated sensitive zones outside of the construction area off limits during the construction and rehabilitation phases of the development. (e) Appropriate sanitary facilities must be provided during the construction phase and all waste removed to an appropriate waste facility. (f) No access to the south of the hill should be allowed during	**Contractor**	**On-going/ daily**

		construction and installation of the conveyor belt at the Tambotie Ore body. (g) Existing river crossing; if used, to be continually monitored and maintained. Any additional or new river crossing for haul road or access roads will require a Water Use Licence		
	Vehicle Access	(a) All construction footprint areas should remain as small as possible and should not encroach onto surrounding more sensitive areas. It must be ensured that these areas are off-limits to construction vehicles and personnel as far as possible. (b) In the event of a breakdown, maintenance of vehicles must take place with care and the recollection of spillage should be practiced near the surface area to prevent ingress of hydrocarbons into topsoil. (c) All vehicles must be regularly inspected for leaks. Re-fuelling must take place on a sealed surface area to prevent ingress of hydrocarbons into topsoil. (d) All spills should be immediately cleaned up and treated accordingly.	**Contractor**	**On-going/ daily**

		(e) Any river crossing for haul roads, vehicles and staff to be continually monitored and maintained.		
	Soil Conditions	(a) All soils compacted as a result of construction activities falling outside of project footprint areas should be ripped and profiled. Special attention should be paid to alien and invasive control within these areas. Alien and invasive vegetation control should take place throughout all construction and rehabilitation phases to prevent loss of floral habitat. (b) Monitor all systems for erosion and incision. (c) No riparian vegetation immediately outside of the servitude belt may be removed (d) Water is to be applied to unpaved haul roads	**Contractor**	**On-going/ daily**
Heritage Features This section aims to provide measures to minimise the damage caused by construction activities on the various heritage resources found throughout the study area.	**Burial grounds and grave**	(a) The field survey did not identify any burial sites within the proposed mine development site. Although the possibility of encountering previously unidentified burial sites is low on the proposed mine development site, should such sites be identified during subsurface construction work,	**Contractor**	**As and when required**

		they are still protected by applicable legislations and they should be protected (b) A valid permit for the relocation of the graves must be obtained from SAHRA, SAPS, Dept. of Health, etc.		
	Heritage Features	Any artefact of cultural significance found on site, work must cease at the site of the find and this person must report this find to their immediate Supervisor; A valid permit for the relocation of the graves must be obtained from SAHRA, SAPS, etc. Location of mining infrastructure should be restricted to minimum footprint impact especially where such infrastructure fall within bushy area. Such bushy sections have local ethno-botany significance as sources of traditional herbs and medicines. As such disruption and vegetation clearance should be minimal Preserved bushveld areas should be protected for ethnobotany significance. As such this	**Contractor**	**As and when required**

		development, should avoid excessive vegetation clearance during the development. A professional archaeologist should be retained to monitor all significant earth moving activities that may be implemented as part of the proposed road development. The monitoring process would ensure that should any archaeological or human remains be disturbed during subsurface construction work at the sites of Interest, immediate remedial rescue and salvage work would commence without delay.		
Construction vehicles / equipment Engine machines such as compressors, pumps, air conditioners and arc welders can have small leaks (usually oil) that can accumulate to become spills, which require clean-up. These leaks become more evident if the equipment remains in the same place for an extended period of time. Damaged fuel tanks, fuel hoses, and fuel pumps can be sources of significant	**Construction equipment**	(a) Vehicles and machinery are to be kept in good working order and to meet manufactures specification for safety, fuel consumption and emission. (b) Should excessive emissions be observed, the site manager needs to implement an effective vehicle and equipment service and maintenance plan. (c) Vehicle parking and equipment storage must be done on a hardened and sealed surface area such that oil, fuel and other fluid leaks do not pollute soil or ground water sources. (d) Proper caging and support are	**Contractor/EO**	**On going**

fuel leaks. Hydraulic systems can blow gaskets or hoses resulting in large quantities of hydraulic fluid spilled to the ground.		required along the conveyor belt system where it crosses the Crocodile River to completely prevent any debris; soil; ore etc. from falling into the river. This caging must extend past the riparian zone of the river. (e) The conveyor belt system may not run on the slope of the nearby hill. The conveyor belt must be aligned to run at the bottom and off the slope of the hill. (f) Must have Backup pumps (in pit sum) (g) Continues maintenance of pump and supply (h) Allow for in pit pumps to be installed with a maximum capacity of 800 m3/ day discharge, and prevent ponding in the pit to avoid contamination of the water.		
	Construction activities – dust and noise generation	(a) Avoid unnecessary movement of transportation vehicles on site. (b) Apply appropriate dust suppression methods. (c) No potable water may be used for dust suppression (as far as is practically possible). (d) Construction time must be restricted to SANS daytime	**Contractor/EO**	**On going**

		hours (06:00-18:00), unless adjacent landowners are notified otherwise. (e) All noise and sounds generated during the proposed activity must comply with the relevant SANS codes and standards. (f) All construction equipment or machinery should be switched off when not in use. (g) Construction equipment must be kept in good working condition. (h) Plant and vehicles must be in good working order and inspected daily. (i) Use silencers on all equipment, where appropriate. (j) Dust suppression along the gravel road to be implemented (k) Reduce operational activities to daylight hours in order to reduce lighting impacts. Should operations continue during night time, ensure careful and strategic placement of lights.		
Emergency Response to spillages This section aims to provide measures to manage spillages from equipment used on site	**Emergency Response to spillages**	The contractor shall take into account the following prevention measures to be applied during spillages. (a) Immediately repair all leaks of hydrocarbons, oil, etc. (b) Take reasonable measures to	**Contractor**	**During spillages**

and measures for other construction materials handled on site.		prevent the spills or leaks. (c) Dispose contaminated materials to a location designated thereto. The contractor shall have its own spill response plan in the event of any spills (oil, fuel, hazardous materials) from his machinery or equipment used on site.		
Air Pollution	**Air Pollution**	(a) Material spillages should be cleaned regularly as they occur. (b) Raw materials may not be stored in an open area. (c) Vehicle speeds must be restricted on the unpaved haul roads.	**PM/EO**	
Waste Management	**Waste Management**	(a) Waste generation must be managed according to international best practice. (b) All materials that can be recycled must be recycled where possible.	**Proponent**	**In accordance with PPC specifications and guidelines**
Emergency Response for spillages	**Soil Contamination**	(a) Contaminated soil must be removed and disposed of at an appropriate registered landfill site.	**Proponent**	**In accordance with PPC specifications and guidelines**
Decommissioning Activities and associated Heavy Machinery and Equipment	**Alteration of Hydrology of Drainage lines and Wetlands**	(a) All decommissioning vehicles should be kept in good working condition; (b) All decommissioning vehicles should be parked in demarcated areas when not in	**Proponent**	**In accordance with PPC specifications and guidelines**

		use, and the soil in this area should be rehabilitated (if required); (c) No vehicles, machinery, personnel, construction material, fuel, oil or waste should be allowed outside of the demarcated working areas; (d) No fuel storage, refuelling, vehicle maintenance or vehicle depots should be allowed within 1000 m of the edge of any wetlands or drainage lines; (e) Vehicles and machinery should not be washed within 100 m of the edge of any wetland or drainage line; and (f) No effluents or polluted water should be allowed to discharge into any drainage lines or wetland areas.		
Site Rehabilitation of Disturbed Areas Surrounding the Assen and Tambotie Overburden Areas and Orebodies	**Rehabilitation of the environment surrounding the newly constructed Assen and Tambotie Overburden Areas and Orebodies**	(a) Ensure that all disturbed areas are stabilised as soon as possible after disturbance / usage. Particular attention must be paid to slopes greater than 20° (1:5) and other areas prone to erosion which should be appropriately vegetated. Rehabilitated areas that are susceptible to erosion due to their position in the landscape should be adequately protected by soil conservation	**Proponent**	**On-going**

		measures; (b) Ensure that all construction access roads are closed and the area rehabilitated upon completion of the construction works, unless otherwise specified by the EO and agreed with the landowner; (c) Remove from the site all construction equipment, surplus material, waste and temporary structures and works of every kind before the final hand-over. After completion of construction, the site should be properly cleaned of any construction waste, litter etc. and adequately rehabilitated/re-vegetated (as directed by the ECO); (d) Rehabilitate any environmental damage caused by construction activities before the final hand-over; (e) Removal of all excavated material (rocks, excess soil, etc.) and construction rubble after construction is completed; (f) Re-vegetated areas should be monitored by the Environmental Control Officer within 3 months after re-vegetation and during the next growing season to ensure that the vegetation has stabilised to		

		the level prior to construction; (g) Rehabilitated areas showing inadequate surface coverage (less than 30% within 9 months after rehabilitation) should be prepared and re-vegetated from scratch with a suitable grass mix that is compatible with the surrounding vegetation; (h) Exotic weeds and invaders that are likely to establish on the rehabilitated areas are to be controlled to allow natural vegetation to properly establish; (i) Damage to rehabilitated areas should be repaired promptly; and (j) The erosion risk will be reduced significantly during the dry season (i.e. winter). Therefore, depending on the construction schedule, excavation activities should aim to be focussed during winter. (k) Full rehabilitation of pit at closure in line with the closure plan; **(l)** Rehabilitate all disturbed areas immediately after construction (areas surrounding the OBDA) **(m)** Rehabilitate of the landscape as much as possible in order		

		for the landscape to better absorb the OBDA. At close-out of the project, the OBDA should be planted with indigenous local vegetation in order for this site to be absorbed by the landscape to decrease the impact after mining has been conducted.		

vi) Indicate the frequency of the submission of the performance assessment report.

An Environmental Audit conducted by an environmental control officer should be conducted once every month to assess compliance with the EMPR during the Pre-construction and construction phases.

Thereafter, a Performance Assessment Report should be submitted to the DMR on an annual basis.

vii) Environmental Awareness Plan

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

The Environmental Officer (EO) or Environmental Control Officer (ECO), is responsible for ensuring everyone on site is given an environmental awareness induction session which not only clearly defines what the environment is and gives specifics detailing the local environment but outlines the requirements of the EMPr as a management tool to protect the environment.

Refresher courses must be conducted as and when required. The EO must ensure daily toolbox talks include alerting the workforce to particular environmental concerns associated with the tasks for that day or the area/habitat in which they are working. Awareness posters and a hand out must be produced to create awareness throughout the site (as needed).

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

The following measures provide guideline solutions to frequently anticipated issues on most development activities:

- The prevention of any site degradation due to non-compliance, administrative or financial problems, and inactivity during the construction phase, illegal activities, delays caused by archaeological finds etc. is ultimately the responsibility of the applicant/developer. Section 28, National Environmental Management Act, 1998 (Act No. 107 of 1998) [NEMA].
- The study area must be clearly defined according to the project authorisation. All workforce members and other construction personnel are not to go beyond the designated footprint.
- The Contractors must adhere to agreed and approved access points and haul roads.
- No camping is allowed on any private property without approval.
- Damage to private or public property such as fences, gates and other infrastructure may occur at any time. All damage to be repaired immediately and to the satisfaction of the owner.
- The Contractor must adhere to all conditions of contract including this EMPr.
- Proper planning of the construction process must be undertaken to allow for disruptions due to rain and very wet conditions.
- All private and public manmade structures near the project site must be protected against damage at all times and any damage must be rectified immediately.
- Proper site management and regular monitoring of site works.
- Proper documentation and record keeping of all complaints and actions taken.
- Regular site inspections and good control over the construction process throughout the construction period.
- A positive attitude towards Environmental Management by all site personnel must be motivated through regular and effective awareness and training sessions.
- An EO, on behalf of PPC, is responsible for the implementation of this EMPr. The EO and not the Contractor is to deal with any landowner related matters.
- Environmental Audits to be carried out prior, during and upon completion of construction.

d) Specific information required by the Competent Authority

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

As is necessary to get an accurate forecast of the final closure costs, the financial provisions made for the proposed mine will have to be reviewed on an annual basis as is required by the EIA regulations of 2014.

i) UNDERTAKING

The EAP herewith confirms that -

a. *the correctness* ***of the information provided in the reports***

X

The information contained in the report is factually correct and a true representation of the information at hand.

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

X

All comments received from I&APs and corresponding responses provided throughout the S&EIR process have been captured in the Comments and Responses Report attached in Appendix E of this report. All comments and recommendations received have been taken into consideration with regards to the project and incorporate where appropriate.

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

X

Detailed specialist studies have been undertaken for the project, where all recommendations (where relevant) received from the relevant specialists have been incorporated into the S&EIR process as well as the project specific EMPr.

d. the acceptability of the project in relation to the finding of the assessment and level of mitigation proposed;

X

Two site alternatives have been identified and assessed for the location of the OBDA associated with the Tambotie orebody. It is important to note that no fatal flaws were identified for the implementation of the project with either one of the alternatives. The alternatives assessed were deemed feasible for implementation by the applicant, where the results from the detailed environmental impact assessment indicate that Alternative 1 (OBDA 1) will have the smallest environmental impact (ecological footprint) on the receiving sensitive environmental conditions. As such, alternative 1 is the preferred option for implementation.

The positive benefits that will result from the implementation of the project far outweigh the potential negative impacts on the receiving environment. With the implementation of the proposed mitigation measures and EMPr, the potential impacts can be mitigated to very-low negative significance. Therefore, it is the EAP's recommendation that the proposed development be authorised by the Department with the implementation of site alternative 1 and associated mitigation measures forming part of the EMPr.

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