

**TYGERKLOOF MINING PTY LTD – TYGERKLOOF MINING
Draft Environmental Scoping Report**

DMR ref: LP30/5/1/2/2/10093MR

**Location: Portion 5 of the farm Tygerkloof 354 KQ, Thabazimbi Local
Municipality, Limpopo**

January 2015



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ABBREVIATIONS

ABET	Adult Basic Education and Training
AEL	Air emission licensing
CA	Competent authority
CoP	Code of Practice
DME	Department of Minerals and Energy
DMR	Department of Mineral Resources
DoL	Department of Labour
DWA	Department of Water Affairs
EAP	Environmental assessment practitioner
ECA	Environmental Conservation Act No 73 of 1989
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMP	Environmental management plan
ESR	Environmental scoping report
GN	Government notice
HDSA	Historically Disadvantaged South African
IDPs	Integrated development plans
IEM	Integrated Environmental Management
I&APs	Interested and affected parties
LED	Local economic development
LEDET	Limpopo Department of Economic Development, Environment and Tourism
MAP	Mean annual precipitation
MAR	Mean annual runoff
MPRDA	Minerals and Petroleum Resources Development Act, No 28 of 2002
MWP	Mining works programme
NEMA	National Environmental Management Act, No 107 of 1998
NEMAQA	National Environmental Management: Air Quality Act No 39 of 2004
NEMBA	National Environmental Management: Biodiversity Act, No 10 of 2004
NEMWA	National Environmental Management: Waste Act, No 59 of 2008
NWA	National Water Act, No 36 of 1998
PPP	Public participation process
RAM	Rhino Andalusite Mine
RMF	Regional Maximum Flood
RWDs	Return water dams
SDFs	Spatial development frameworks
SDM	Sustainable Development through Mining Programme
SLP	Social and labour plan
SWMP	Stormwater management plan
TLM	Thabazimbi Local Municipality
UIF	Unemployment Insurance Fund

WDM	Waterberg District Municipality
WRDs	Waste rock dumps
WUL	Water use licence
WULA	Water use licence application

EXECUTIVE SUMMARY

Applicant

BECS Environmental has been appointed by Tygerkloof Mining (Pty) Ltd to apply for an environmental authorisation, a mining right, and a water use licence (WUL) for the proposed extension of quarries and associated haul road in the Thabazimbi area. Rhino Andalusite Mine (RAM) is an already existing mine, covering Portion 1 and the Remaining Extent of the farm Buffelsfontein 353 KQ, and Portion 3 of the farm Grootfontein 352 KQ. This mine has been operating under a mining licence, with mining right number 74MR, for more than 25 years (refer to Addendum 4 for copy of this mining right). Tygerkloof Mining is a proposed new mine, adjacent to this already existing RAM, but will entail the extension of the already existing quarries and haul road from RAM area into Tygerkloof Mining area, on portion 5 of the farm Tygerkloof 354 KQ, Thabazimbi Local Municipality (TLM), Limpopo. Tygerkloof Mining and RAM fall under the management of Imerys Refractory Minerals, a member of the Imerys Group.

Background and project description

The RAM was originally the Timeball Andalusite Mine. RAM mines an andalusite ore body, developed along the strike of an alumina-rich shale band at the base of an ironstone ridge, in the foothills of the Witfontein Mountain Range. The ore body is being mined by means of open quarry methods. The existing mine has 7 open quarries, tailings dams, waste rock dumps (WRDs), overburden dumps, processing plants, return water dams (RWDs), workshops, store rooms, mine buildings, a network of internal roads, and one haul road.

The Tygerkloof Mining extension will include an open quarry with overburden adjacent to the quarry, as well as a haul road to transport ore from the quarry to the existing RAM. The quarry will be approximately 115.9ha. Overburden from the mining operations will be stored adjacent to the quarry. The overburden will cover an area of approximately 142.2ha. The already existing haul road will be extended at a width of approximately 12m, and a length of 3.5km, adjacent to the quarry. Portion 5 of the farm Tygerkloof 354 KQ is approximately 594ha, therefore 44% of the total area will be disturbed for mining activities.

INTRODUCTION

Three different processes are conducted simultaneously to obtain all the necessary authorisations for the Tygerkloof Mining operations:

- An environmental impact assessment (EIA) process is followed in terms of the National Environmental Management Act, No 107 of 1998 (NEMA). The Limpopo Department of Economic Development, Environment and Tourism (LEDET) is the competent authority (CA).
- This draft environmental scoping report (ESR) forms part of the mining right application process terms of the Minerals and Petroleum Resources Development Act, No 28 of 2002 (MPRDA). The Limpopo Department of Mineral Resources (DMR) is the CA.
- A WUL application (WULA) process is followed in terms of the National Water Act, No 36 of 1998 (NWA). North West Department of Water Affairs (DWA) regional offices is the CA.

Details of the applicant and landowner

Refer to Table 1 below for a description of the applicant, Figure 1 for an organogram of the applicant, and Table 2 for a description of the landowner of the proposed site.

Table 1: Description of the applicant

Project applicant	Tygerkloof Mining Pty Ltd
Trading name	Tygerkloof Mining
Contact person	Hendrik Jones
Physical address	Farm Grootfontein Makoppa, Turn Off on the R510, Thabazimbi, 0380
Postal address	Private bag X 329, Thabazimbi, 0380
Telephone number	014-784-0660
Facsimile number	014-784-0669
E-mail address	hendrik.jones@imerys.com

Table 2: Description of the landowner

Proposed farm name and portion	Portion 5 of the farm Tygerkloof 354 KQ
Coordinates of proposed project	24° 43' 35"S; 27° 13' 58"E
Landowner	Rhino Andalusite Mine
Contact person	Hendrik Jones
Physical address	Farm Grootfontein Makoppa, Turn Off on the R510, Thabazimbi, 0380
Postal address	Private bag X 329, Thabazimbi, 0380
Telephone number	014-784-0660
Facsimile number	014-784-0669
E-mail address	hendrik.jones@imerys.com

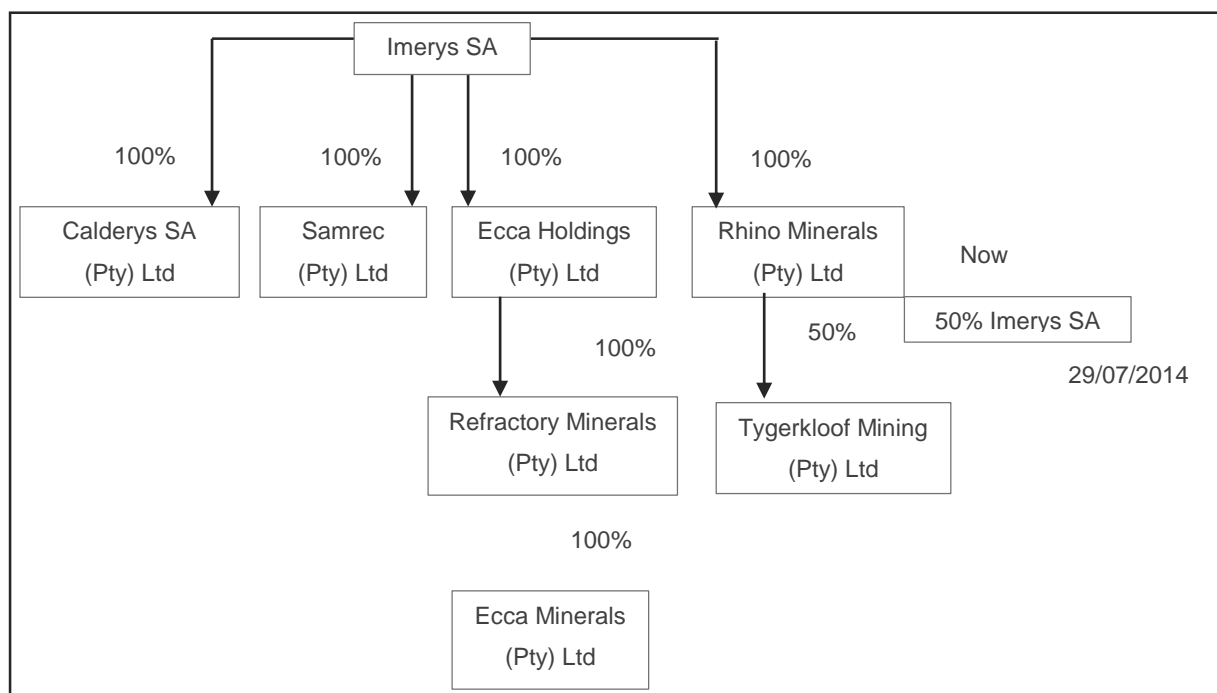


Figure 1: Tygerkloof Mining organogram

Details and expertise of the environmental assessment practitioner

BECS Environmental was appointed as an independent consultant to meet the requirements as set out in regulation 17 of the EIA Regulations, 2010. Refer below to a description of the environmental assessment practitioner (EAP), and refer to Addendum 2 for a detailed CV of the EAP.

Table 3: Description of the environmental assessment practitioner

Name of company	BECS Environmental
Postal address	PO Box 72960, Lynnwood Ridge, 0040
Telephone number	012-361-9970
Cell phone number	072 191 6074
Facsimile number	012-361-0645
E-mail address	salome@becsenv.co.za
Name of responsible EAP	Salome Beeslaar
Expertise of EAP	B.Sc Environmental Science (UP), B.Sc Honours Geography (UP), M.Sc Geography (UP), Professional Scientist (Environmental Science)

Legislation and guidelines followed

Three different processes are conducted simultaneously to obtain all the necessary authorisations for the Tygerkloof Mining operations. These three processes are the environmental authorisation in terms of the NEMA, as amended, a mining right application in terms of the MPRDA, as amended, and a WUL in terms of the NWA, as amended

There are 3 spheres of environmental legislation that must be considered on a mining area. The first sphere is the Constitution of RSA, the second sphere are framework legislations, the NEMA, the NWA, and the MPRDA. The third sphere is sectoral environmental legislation, the National Environmental Management: Air Quality Act No 39 of 2004 (NEMAQA), the National Environmental Management: Biodiversity Act, No 10 of 2004 (NEMBA), and the National Environmental Management: Waste Act, No 59 of 2008 (NEMWA). Below is a short description of the main applicable legislation. All additional legislation, which have an effect on the environment, will also be discussed in his section.

Constitution of South Africa, 1996 (Act No 108 of 1996)

The Constitution of South Africa, 1996 (Act 108 of 1996) provides for an environmental right (contained in the Bill of Rights, Chapter 2). In terms of Section 7, the state is obliged to respect, promote and fulfil the rights in the Bill of Rights. In other words, a positive obligation is placed on the State to give effect to the environmental right. The environmental right states that:

'Everyone has the right -

- a. To an environment that is not harmful to their health or well-being; and*
- b. To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that -*
 - i. Prevent pollution and ecological degradation;*
 - ii. Promote conservation; and*
 - iii. Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.'*

Framework legislation

Environment Conservation Act No 73 of 1989

The first environmental legislation in South Africa was the Environmental Conservation Act No 73 of 1989 (ECA). The ECA commenced on 9 June 1989. Any activities that took place from 9 June 1989 are subject to this act. Sections 19 and 20 of the ECA dealt with waste management. Any person who had waste management activities in terms of this act had to obtain a waste permit from the, then, Department of Water Affairs and Forestry. These sections were repealed by the NEMWA, which commenced on 1 July 2009.

Sections 21 and 22 identified activities that will probably have detrimental effect on environment, and which need environmental authorisations. A list of activities that trigger environmental authorisations were published as Government Notice (GN) 1182, whereby certain activities commenced on 8 September 1997, 5 January 1998, 2 March 1998, and 1 April 1998. GN 1182 was amended by GN 1355 of 1997, GN 448 of 1998, and GN 670 of 2002. The GN 1182 listed activities were accompanied by the Regulations Regarding Activities Identified in terms of ECA, GN 1183. These regulations were amended in 2002 through GN 672 in terms of the ECA. These sections as well as the listed activities were repealed by the EIA Regulations, which commenced on 21 April 2006; however on 23 June

2006, the Minister repealed the notices that repealed these activities. Therefore, any activity that took place between the various dates of GN 1182 (8 September 1997, 5 January 1998, 2 March 1998, and 1 April 1998) and 21 April 2006, which triggered a listed activity in terms of these regulations.

Section 25 of the ECA identified Regulations regarding noise, vibration and shock. These Noise Control Regulations, GN 5479, were published in 1998, and are not repealed.

National Environmental Management Act, 1998 (Act No. 107 of 1998)

The NEMA commenced on 29 January 1999. Chapter 5 of the NEMA (Integrated Environmental Management (IEM)) includes Section 23, the General Objectives, and Section 24, Implementation. These two sections are similar in purpose as sections 21 and 22 in terms of ECA. EIA regulations were published on 21 April 2006. List of identified activities which need to be authorised and CAs (GN 386 and 387) were also published on 21 April 2006. These two lists included activities which trigger a basic assessment process and an EIA process. On 23 June 2003, the Minister published an amendment (GN 614) whereby items 7 and 8 of GN 387 were held back, these items are regarding environmental authorisation for reconnaissance, exploration, production and mining.

Section 24 of NEMA was amended 4 times since 1999. In the NEMA 2004 (commencing on 7 January 2005), Sections 24A to I were inserted; in NEMA 2008 (commencing on 1 May 2009), Sections 24J to R were inserted; and in NEMA 2014 (commencing on 2 September 2014), Section 24S was inserted. All sections of NEMA 2008 commenced, except for mining related activities, which will only commence on 7 December 2014 (18 months from commencement of the MPRDA 2008). Section 24S of NEMA 2014 has commenced, however, there is no regulation yet published for this section.

The new EIA regulations were published on 18 June 2010, and the regulations took effect on 2 August 2010. Lists of identified activities which need to be authorised and CAs (GN 544, 545 and 546) were also published on 18 June 2010, and took effect on 2 August 2010. These three lists included activities which trigger a basic assessment process, an EIA process, and basic assessment process due to geographical areas. These regulations were corrected in July and December 2010. A proclamation signed by the President on 6 June 2013, indicated that the items listed as 19 and 20 (GN 544), and 20 – 23 (GN 545) did not commence. These items are mine related activities. Two amendments to the EIA regulations were published in 2013, whereby effluent and wastewater treatment activities were included in the lists. Regulation regarding fee for applications, and regulations regarding the phasing-out of PCBs were published in 2014.

National Water Act No 36 of 1998

The NWA commenced on 1 October 1998, with the exceptions of section 33, which commenced on 1 January 1999 and 1 October 1999. Chapter 4 of the NWA regulates the use of water. Under this chapter is section 21, indicating all water uses; section 22 indicating permissible water uses; section

27, considerations for issue of general authorisations and licence; section 32 to 35 indicating existing lawful water uses; section 36, declaration of stream flow reduction activities; section 39, general authorisations; section 40 to 52, WULAs. This act was amended with the National Water Amendment Act No 45 of 1999. On 12 November 1999, the 'Regulations Requiring that a Water Use be Registered', and 'Regulations Requiring that a Water Use be Registered', commenced.

The 'Regulations on Use of Water for Mining and Related Activities Aimed at the Protection of Water Resources' commenced on 4 June 1999. These regulations have not been amended up to date. On 8 October 1999, the 'The Taking of Water from a Water Resource and Storage of Water', commenced. These regulations were amended on 26 March 2004 (GN 399). GN 399 was extended until such time as it is withdrawn. Only on 26 March 2004, the 'Impeding or Diverting the Flow of Water in a Watercourse', commenced. These regulations were amended on 18 December 2009 (GN 1198), and again on 1 January 2010.

Minerals and Petroleum Resources Development Act No 28 of 2002

This act commenced on 1 May 2004 and was amended by MPRDA 2008, which commenced on 7 June 2013. Section 5 deals with the legal nature of prospecting right, mining right, exploration right or production right, and rights of holders thereof. Section 22, 23, and 25 deals with the application for a mining right, the granting and duration of mining right, and rights and obligations of holder of mining right, respectively. The Environmental management principles, IEM and responsibility to remedy, Environmental management programme and environmental management plan (EMP), Financial provision for remediation of environmental damage, and Management of residue stockpiles and residue deposits are described in sections 37, 38, 39, 41, and 42.

The amended MPRDA 2008 amended section 22, to include: Any person who wishes to apply to the Minister for a mining right must simultaneously apply for an environmental authorisation and must lodge the application, however, this section does not indicate that such authorisation must be done in terms of NEMA. This amendment is also included in sections 23 and 25. Section 38 is amended by included in sections 38A & B, however, section 38B was withheld through a proclamation signed by the President on 6 June 2013. Sections 39, 40, 41 and 42 of the principal Act were repealed, and form part of NEMA 2008. All mining related sections in NEMA 2008 will only take effect on 7 December 2014, therefore the environmental principles of the MDRA (even though repealed), will still be effective.

The MPRDA Regulations were published in 2004 and commenced on 23 April 2004. The application for a mining right and the mining works programme (MWP) are included in regulations 10 and 11. Part 3 of the regulations consist of all environmental regulations, and part 4 consists of pollution control and waste management principles. The MPRDA Regulations were amended on 29 November 2006, 30 November 2006 and 18 April 2011.

It is noteworthy to point out that section 23(6) states:

A mining right is subject to this Act, any relevant law, the terms and conditions stated in the right and the prescribed terms and conditions and is valid for the period specified in the right, which period may not exceed 30 years.

Therefore, the mining activities must comply with all relevant legislation. An authorised mining right does not acquit the mine from needing to obtain the relevant authorisations under other legislation.

Sectoral legislation

National Environmental Management: Air Quality Act No 39 of 2004

This act commenced on 11 September 2005, except for certain sections (regarding air emission licensing (AEL)), which were commenced on 1 April 2010. The 'List of activities which result in atmospheric emissions which have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage' regulations (GN 248) commenced on 22 November 2013.

Part 6 of NEMAQA (section 32 to 35) describes measures in respect of dust, noise and offensive odours. On 22 November 2013, the National dust Control Regulations were published. No regulations for noise, offensive odours, or rehabilitation of mines, have yet been published.

National Environmental Management: Biodiversity Act No 10 of 2004

The NEMBA commenced on 1 September 2004. On 9 December 2011, the regulations on 'National List of Ecosystems which are threatened and in need of Protection' commenced. These regulations were published in terms of section 52(1)(a) of NEMBA, and gave a list as well as map of all threatened ecosystems. There are four main types of implications of listing an ecosystem:

- Environmental authorisations as per listing 3 of NEMA must be applied for, where necessary. This will apply to the applicant;
- Planning related implications, linked to the requirement in the Biodiversity Act for listed ecosystems to be taken into account in municipal integrated development plans (IDPs) and spatial development frameworks (SDFs). This will apply to the municipalities;
- Proactive management implications, in terms of the Biodiversity Act. In general, this is an action to be taken by the Minister, but includes Regulation and control of invasive alien species could be prioritised in listed ecosystems, which will apply to the applicant;
- Monitoring and reporting implications, in terms of the NEMBA. This is an action to be taken by the Minister.

The 'Publication of National List of Invasive Species', 'Publication of Prohibited Alien Species', and 'Publication of Exempted Alien Species' commenced on 19 July 2013. The 'Alien and Invasive Species Regulations' commenced on 30 September 2014. According to these regulations, any

species listed as Category 1a Listed Invasive Species, comply with the provisions of section 73(2) of NEMA, must be controlled and eradicated, and allow an authorised official from the Department to enter onto land to monitor, assist with or implement the combatting or eradication of the listed invasive species. Category 1b Listed Invasive Species, must be controlled and eradicated, and allow an authorised official from the Department to enter onto land to monitor, assist with or implement the combatting or eradication of the listed invasive species. If an Invasive Species Management Programme has been developed in terms of section 75(4) of the Act, a person must control the listed invasive species in accordance with such programme. Category 2 Listed Invasive Species may not spread outside of the land or the area. If an Invasive Species Management Programme has been developed in terms of section 75(4) of the Act, a person must control the listed invasive species in accordance with such programme. Any plant species identified as a Category 3 Listed Invasive Species that occurs in riparian areas, must, for the purposes of these regulations, be considered to be a Category 1b Listed Invasive Species and must be managed according to those regulations. If an Invasive Species Management Programme has been developed in terms of section 75(4) of the Act, a person must control the listed invasive species in accordance with such programme. This Invasive Species Management Programme is not yet published.

These regulations should be read with the regulations in terms of the Conservation of Agricultural Resources Act no. 43 of 1983.

National Environmental Management: Waste Act No 59 of 2009

The NEMWA commenced on 1 July 2009. This act was amended by the National Environmental Management Laws Amendment Act 14 of 2013 (commencing on 24 July 2013), the National Environmental Management: Waste Act 59 of 2008 (commencing on 2 May 2014), National Environmental Management: Waste Amendment Act 26 of 2014 (commencing on 2 June 2014), National Environmental Management Laws Amendment Act 25 of 2014 (commencing on 2 September 2014). It is important to note that National Environmental Management Waste Amendment Act 26 of 2014 and National Environmental Management Laws Amendment Act 25 of 2014 amended the act in such a way to include mine residue under waste.

On 23 August 2013, the 'Waste Classification and Management Regulations' were published whereby all waste, excepts those specified in Annexure 1 of the regulations, must be classified and managed.

On 29 November 2013, List of Waste Management activities that have, or are likely to have, a Detrimental Effect on the Environment' regulations were published. These regulations contained 3 categories, of which Category A and B need a waste licence with an accompanied basic assessment or EIA process. Category C must comply with the relevant requirements or standards determined by the Minister. These standards includes 'National Norms and Standards for the Storage of Waste' regulations, also published on 29 November 2013.

Additional legislation

Additional legislation to take into consideration during this process are as follow:

- Promotion of Access to Information Act, 2000 (Act No. 2 of 2000 as amended)
- National Forest Act (Act no. 84 of 1998)
- Conservation of Agricultural Resources Act, 1983 (Act No 43 of 1983)
- National Veld and Forest Fire Act, 1998 (Act No 101 of 1998)
- Agricultural Pest Act, 1983 (Act No 36 of 1983 as amended) – GN R276 of 5 March 2004
- National Fencing Act, 1963 (Act No 31 of 1963 as amended)
- National Forest and Fire Laws Amendment Act (Act No 12 of 2001)
- National Heritage Resources Act No 25 of 1999 (Act No. 25 of 1999, as amended)
- National Environmental Management: Protected Areas Act, 2003 (Act No 57 of 2003 as amended)

Applicable guidelines

Applicable guidelines to be used throughout this process wil include:

- Mining and biodiversity guideline
- Interpretation of 'Commence'
- IEM Information Series
- IEM Guideline Series 9, Needs and Desirability, GN 891
- IEM Guideline Series 7, Public participation, GN 807
- IEM Guideline, Companion Guideline to Implementation of EIA Regulations 2010, GN 805

Project needs and desirability

Existing operations

RAM has been in operation for more than 25 years. It was established that the andalusite reserve extends further than this already existing mine, into portion 5 of the farm Tygerkloof. This project is therefore an extension of an already existing mining operation. There are also other andalusite mines in the area.

Sustainability

According to the 'Strategic framework for implementing sustainable Development in the South African minerals sector:

“The South African Constitution provides that everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected for the benefit of present and future generations”. This must be achieved through reasonable legislative and other measures that will prevent pollution and ecological degradation, promote conservation and secure sustainable use of natural resources while promoting economic and social development.” This is a cornerstone of the Sustainable Development through Mining Programme (SDM) initiated by the Department of

Minerals and Energy (DME) in 2004. The definitive goal of the SDM Programme is that “by 2010 the South African Mining Industry contributes optimally to Sustainable Development”.

It is therefore imperative that any new process, including mining is done in a sustainable manner.

According to various material safety data sheets available on the internet, andalusite does not have adverse ecological impacts. No additional water will be used for the mining operation. It is envisaged that only rainwater will be pumped from the open quarry, therefore no additional groundwater will be lost to the mining operation. A ‘Geohydrological’ assessment will be done to assess this statement. Impacts on the mine can be minimised and prevented if management measures are implemented, and concurrent as well as final rehabilitation takes place. This proposed mining operation could therefore operate in a sustainable manner.

Local economy

RAM contribute to the local economy in the area through employment opportunities and buying of goods in the area. This extension will increase employment opportunities. The local economy will therefore benefit from this extension.

SECTION 1: THE METHODOLOGY APPLIED TO CONDUCT SCOPING

1.1 Name the communities as defined in the guideline, or explain why no such community was identified

RAM is the landowner of Portion 5 of the farm Tygerkloof 354 KQ, which is situated adjacent to Portion 1 and the Remaining Extent of the farm Buffelsfontein 353 KQ, also owned by RAM. Tygerkloof Mining and RAM fall under the management of Imerys Refractory Minerals, a member of the Imerys Group. There is no community (historically disadvantaged persons with interest or rights in a particular area of land on which the members have or exercise communal rights in terms of an agreement, custom or law) occupying the proposed mine area.

1.2 State whether or not the community is also the landowner

Refer to Section 1.1 above.

1.3 State whether or not the Department of Land Affairs was identified as an interested and affected party

The Department of Rural Development and Land Affairs (DRDLA), has been identified as an organ of state. Details with regards to the EMP will be communicated to them.

1.4 State specifically whether or not a land claim is involved

A letter was received on 14 November 2014 whereby the Office of the Regional Land Claims Commissioner: Limpopo confirmed that there is currently no information available with regards to land claims on portion 5 of the farm Tygerkloof 354 KQ.

1.5 Name the traditional authority identified by the applicant

No traditional has been identified by the client. If any traditional authority is identified during the public participation process (PPP), this authority will be contacted and consulted.

1.6 List the landowners and interested and affected parties identified by the applicant

According to the Publication of Participation Guideline (NEMA), and I&AP is:

“(a) any person, group or persons or organisations interested in or affected by an activity, and (b) any organ of state that may have jurisdiction over any aspect of the activity”.

This definition is more detailed in the Guideline for consultation with communities and interested and affected parties (MPRDA):

“Interested and affected’ parties include, but are not limited to; (i) Host Communities, (ii) Landowners (Traditional and Title Deed owners), (iii) Traditional Authority, (iv) Land Claimants, (v) Lawful land occupier, (vi) The Department of Land Affairs, (vii) Any other person (including on adjacent and non-

adjacent properties) whose socio-economic conditions may be directly affected by the proposed prospecting or mining operation (viii) The Local Municipality, (ix) The relevant Government Departments, agencies and institutions responsible for the various aspects of the environment and for infrastructure which may be affected by the proposed project.”

This PPP was conducted to include the definitions of both the NEMA and MPRDA guidelines.

RAM is the landowner of Portion 5 of the farm Tygerkloof 354 KQ, which is situated adjacent to Portion 1 and the Remaining Extent of the farm Buffelsfontein 353 KQ, also owned by RAM. Tygerkloof Mining and RAM fall under the management of Imerys Refractory Minerals, a member of the Imerys Group. The following interested and affected parties (I&APs) were identified:

Table 4: Interested and affected parties identified

Name	Comments
Historical disadvantaged communities	
None identified	
Landowner	
RAM	RAM and Tygerkloof Mining form part of Imerys SA
Traditional authority	
None identified	
Land claimants	
None identified	None confirmed by Office of the Regional Land Claims Commissioner: Limpopo
Lawful land occupier	
None identified	Owner is RAM, no occupier currently on site.
Any other person whose socio-economic conditions may be directly affected by the proposed prospecting or mining operation	
See list attached as Addendum 3A.	
Local municipality	
Thabazimbi Local Municipality	
Relevant government departments – Refer to Addendum 3B	
Waterberg district Municipality	
Ward Councillor – Ward 3	
South African Heritage Resources Agency	
DWA	
Department of Agriculture, Forestry and Fisheries	
LEDET	
Local Department of Environmental Affairs	
DRDLA	
DMR	

1.7 List the lawful occupiers of the land concerned

Refer to Section 1.6 above.

1.8 Explain whether or not other persons' socio-economic conditions will be directly affected by the proposed prospecting or mining operation and if not, explain why not

Refer to Section 1.6 above. Any comments received on whether other persons' socio-economic conditions will be directly affected by the proposed prospecting or mining operation, will be included in the final ESR.

1.9 Name the local municipality identified by the applicant

The proposed site is located in the Thabazimbi Local Municipality (TLM), Limpopo Province.

1.10 Name the relevant government departments, agencies and institutions responsible for the various aspects of the environment, land and infrastructure which may be affected by the proposed project

Refer to Section 1.6 above.

1.11 Confirm that evidence that the landowner or lawful occupier of the land in question, and any other interested and affected parties including all those listed above, were notified, and has been appended hereto

Refer to Addendum 3 for all evidence that all interested and affected parties including all those listed above, were notified.

SECTION 2: EXISTING STATUS OF THE CULTURAL, SOCIO-ECONOMIC AND BIOPHYSICAL ENVIRONMENT

The environmental background description is a general overview of the area. During the course of the EIA process, various specialist studies will be conducted whereby this environmental background description will be updated with these studies.

A description of information used and information that must still be obtained are given at the beginning of each sub-section or environmental component. Each sub-section is concluded with a description on how the environmental component will affect the proposed activities.

The proposed mine is located in the TLM, within the Waterberg District Municipality (WDM), in the south-western part of the Limpopo Province in the Savannah Biome. It is situated near the Pilanesberg National Park. This area is mainly applied for agriculture although platinum, iron and andalusite is also mined in the area. The proposed mine is located on the south-eastern slope of the foothills of the Witfonteinrand Mountain Range and is situated approximately 110km from Rustenburg and 15km south-west of Thabazimbi. It is linked to the R510 Road via a dirt road which leads to Makoppa.

2.1 Confirm that the identified and consulted interested and affected parties agree on the description of the existing status of the environment

Notification and consultation with I&APs and adjacent land owners will be undertaken as part of the PPP. During this PPP, I&APs will respond to the description of the existing status of the environment as per the scoping report, specialist studies, and EMP amendment.

2.2 Existing status of the cultural environment that may be affected

No information is currently available. A 'Cultural and Heritage' specialist study will be conducted as part of the EIA process. This section will be updated with information from this specialist study. Any manner in which the environment will affect the proposed activity will be included in the EIA report (EIAR), depending on the outcome of the specialist study.

2.3 Existing status of any heritage environment that may be affected

Please refer to Section 2.2 above.

2.4 Existing status of any current land uses and the socio-economic environment that may be directly affected

Information for this section was obtained from the 'Integrated Development Plan' (Thabazimbi Local Municipality, 2013), and 'Integrated Development Plan' (Waterberg District Municipality, 2013)

2.4.1 Demographics

Limpopo is the fifth most populated province at 5.4 million. Population increased in WDM from 604,936 in 2001 to 679,336 in 2011. Population increased in TLM from 65,533 in 2001 to 85,234 in 2011. Refer to Table 5 below for population, age and gender structure. The majority of population is aged below 35 years. TLM experienced fast population growth for the period between 2001 and 2011. Majority of population is age between 15 and 64 with males in the majority.

Table 5: Population, age and gender structure

Age structure						Gender ration		Population growth (% p.a.)	
<15		15-65		>65		Males per 100 females			
2001	2011	2001	2011	2001	2011	2001	2011	1996-2001	2001-2011
26.0	21.1	71.5	76.4	2.5	2.4	114.0	141.1	1.71	2.63

Source: Statssa, Census 2011

Refer to Table 6 below for population group and sex structure. According to these results, Blacks are in the majority, followed by whites. There are more male blacks than female blacks.

Table 6: Population group and sex structure

Population group	1996			2001			2011		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Blacks	29,984	17,15	46,999	28,935	24,940	53,875	42,773	29,072	71,845
Whites	6,415	5,886	12,281	5,810	5,540	11,350	6,420	5,889	12,309
Coloured	136	115	251	151	122	274	310	217	527
Indians/Asian	19	8	26	19	15	34	130	75	205
TOTAL	36,554	23,024	59,578	34,915	30,617	65,532	49,633	35,253	84,886

Source: Statssa, Census 2011

Refer to Table 7 below for the dependency ratio for 1996, 2001 and 2011. Dependency ratios provide insights in to the burden born by those who are in working age group (15 -64) years to support those aged 0 -14 and 65+ years. Dependency ratio has been declining over time.

Table 7: Dependency ratio for 1996, 2001 and 2011

	1996	2001	2011
0 - 14	14,451	17,062	18,014
15 - 64	42,225	46,835	65,153
65+	1,894	1,637	2,067
Dependency Ratio	38.7	39.9	30.8

Source: Statssa, Census 2011

Refer to Table 8 below for the distribution of the population aged between 5 and 24 years by school attendance, and sex for 1996, 2001 and 2011

Table 8: Distribution of the population aged between 5 and 24 years by school attendance, and sex for 1996, 2001 and 2011

	1996			2001			2011		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Attending	4,901	4,567	9,468	5,425	5,139	10,563	6,462	6,091	12,554
Not Attending	3,933	3,505	7,438	5,109	5,399	10,507	5,570	4,465	10,035
TOTAL	8,834	8,072	16,906	10,533	10,537	21,070	12,032	10,556	22,589

Source: Statssa, Census 2011

Refer to Table 9 below for the household demographics.

Table 9: Household demographics

Household		Household dynamics			
2001	2011	2001	2011	2001	2011
20,734	25,080	2.9	3.4	29.4	24.7

Source: Statssa, Census 2011

2.4.2 Basic services

Refer to Table 10 below for distribution of households using electricity for lighting, heating, cooking, Table 11 for distribution of households by access to piped water, Table 12 for distribution of households by type of refuse removal, and Table 13 for distribution of households by type of toilet facility

Table 10: Distribution of households using electricity for lighting, heating, cooking

Lighting			Cooking			Heating		
1996	2001	2011	1996	2001	2011	1996	2001	2011
7,819	10,039	19,269	6,664	7,985	18,332	6,668	8,010	17,062

Source: Statssa, Census 2011

Table 11: Distribution of households by access to piped water

Piped(tap) water inside dwelling yard			Piped (tap) water on communal stand			No access to piped (tap) water		
1996	2001	2011	1996	2001	2011	1996	2001	2011
9,521	11,782	17,863	1,686	8,705	5,668	3,603	247	1,550

Source: Statssa, Census 2011

Table 12: Distribution of households by type of refuse removal

Removed by local authority/ Private company			Communal Refuse dump			No rubbish disposal		
1996	2001	2011	1996	2001	2011	1996	2001	2011
5,788	7,727	15,609	8,189	10,844	7,756	627	2,164	1,381

Source: Statssa, Census 2011

Table 13: Distribution of households by type of toilet facility

Flush/ Chemical toilet			Pit toilet			Bucket latrine			No toilets		
1996	2001	2011	1996	2001	2011	1996	2001	2011	1996	2001	2011
7,563	9,796	17,211	5,307	5,630	5,51	67	88	189	1,877	5,220	1,585

Source: Statssa, Census 2011

TLM is designated as Water Services Authority and Water Service Provider. TLM has appointed Water lab for a period of 1 year for sampling on clear water quality monitoring. The challenge is that the Service provider withheld the test result due to Municipality cash flow problem. Water Services Development Plan and Draft Water and Sanitation Bulk Infrastructure are in place.

Thabazimbi, Regorogile and Northam currently have a quota of 9MI per day from Magalies board. Regorogile and Thabazimbi have additional supply from seven boreholes. The boreholes are located at Group 5, 12 and Kumba Iron Ore Mine. Rooiberg and Leeupoort/Raphuti currently source their water from local boreholes. Schilpadnest water is also supplied from three working boreholes without any chlorination facilities.

Thabazimbi and Regorogile are using water borne sewer system. The existing water treatment plant caters for Thabazimbi town including Regorogile and Ipelegeng. The current capacity of the plant is 28 litres per second but the average daily flow is about 60 litres per second. The current sanitation system in Northam is 60% water borne and 40% septic tank. Leeupoort is septic tank. The Municipality empties the septic tanks for all the residents regularly and discharges the sewerage into the existing oxidation ponds. The outfall sewer has been partially constructed in Northam and the project is still outstanding. The municipality does not provide bulk water to the mines within its area of jurisdiction

2.4.3 Employment and income

Refer to Table 14 for the labour market demographics, Table 15 for the distribution of the population aged between 15 and 64 years by employment status for 1996, 2001 and 2011, and Table 16 for households by monthly income category. Majority of household earn between R3,201 – R6,400.

Table 14: Labour market demographics

Unemployment rate		Labour market		Education age 20+				Matric	
		Youth Unemployment Rate 15 – 24 years		No Schooling		Higher Education			
2001	2011	2001	2011	2001	2011	2001	2011	2001	2011
21.0	20.6	31.0	26.9	17.5	8.8	16.0	26.6	4.3	7.6

Source: Statssa, Census 2011

Table 15: Distribution of the population aged between 15 and 64 years by employment status for 1996, 2001 and 2011

Employed			Unemployed			Unemployed Rate		
1996	2001	2011	1996	2001	2011	1996	2001	2011
28,712	26,903	29,605	2,540	7,143	7,304	8.1	21.0	19.8

Source: Statssa, Census 2011

Table 16: Households by monthly income category

Income category	Household
No income	3,518
R1 – R400	686
R401 – R800	1,027
R801 – R1,600	3,165
R1,601 – R3,200	4,048
R3,201 – R6,400	5,021
R6,401 – R12,800	3,517
R12,801 – R25,600	2,474
R25,601 – R51,200	1,160
R51,201 – R102,400	313
R102,401 – R204,800	105
R204,801 or more	45

Source: Statssa, Census 2011

2.4.4 Settlement patterns

There are four urban settlements in TLM area:

- Thabazimbi/ Regorogile: Main hub of the Municipal area. It has a well-established business and industrial area with sizable residential developments. It provides the majority of services to the rest of the municipal area.
- Northam: The second largest town in the Thabazimbi Municipal area. It has a well-established business sector (albeit smaller than Thabazimbi) and caters for the residents of the Northam town, as well as for the wider farming and mining areas.
- Rooiberg: A small rural town that originated as a mining town. Today no more mining activities take place and the town is mostly inhabited by residents involved in local businesses, which is

primarily tourist and property related, as well as by retired citizens. A Low Cost Housing project has been approved by the former Department of Housing and provision was made for ± 200 new houses. The farms that are located in and around Rooiberg also accommodate farm workers.

- Dwaalboom: A small town also referred to a mining town with the focal point being the PPC mine. Dwaalboom residents reside in the surrounding farm areas or in PPC houses. It has a various supporting social and business amenities. Thabazimbi provides key specialised services. The farms that are located in and around Dwaalboom also accommodate farm workers.

Other predominantly rural settlements in the Thabazimbi Municipal area are; Leeupoort, Kromdraai, Koedoeskop, Makoppa and Sentrum. These smaller settlements are mostly rural residential in character with ancillary small-scale businesses. (Rural areas are defined as: the sparsely populated areas in which people farm or depend on natural resources, including the villages and small towns that are dispersed through these areas. (Rural Development Framework, 1997)):

- Leeupoort (including Raphuti Stad): so-called “Holiday Township”, but proclaimed as a formal public township. It has specific eco-life style natural living areas. The township is characterised by gravel roads, borehole water, septic tanks with limited boundary fences around dwelling houses and game is roaming freely within the confines of Leeupoort. In respect of Raphuti (a.k.a. Leeupoort Vakansiedorp Extension 7) 100 government subsidies have been approved by the Department of Health but no houses have yet been built.
- Kromdraai: A grouping of “agricultural holdings” and has a distinct rural character. Some businesses, guest houses and lodges are found in this settlement but residents are dependent on Thabazimbi or Bela-Bela for primary services. There are a number of farm workers working and staying in this area.
- Koedoeskop: A small rural settlement with a small number of residents. It provides a low level commercial service to the farming community in the area. The surrounding area is mostly agricultural and utilised for irrigation farming. There are a number of farm workers working and staying in this area.
- Makoppa: This settlement is characterised as a typical farming community with predominant agricultural land uses including a large number of game farms. It provides a low level commercial service to the farming community in the area. There are a number of farm workers working and staying in this area.
- Sentrum: This settlement is a small-scale rural settlement with a small number of residents. It is totally dependent on Thabazimbi for basic and primary services. The area is mostly known for game and cattle farming. There are a number of farm workers working and staying in this area.

Thabazimbi is characterised by a number of informal settlements. The following table describe the various informal settlements:

- Schilpadnest “Smash block”: Located close to Amandelbult (mine area). Settlement is reaching alarming proportions as no formal infrastructure service are in place. Many efforts have been

made by in the past by different authorities to resettle the people or to formalise the area for residential purposes but without success.

- Jabulani: Located close to Northam Platinum Mines on the farm Elandskuil. No infrastructure services. Municipality supply's water by truck. The settlement is growing on a constant basis. Inhabitants are most likely local mine workers and farm workers from the nearby farms.
- Rooiberg: Located south-east of Rooiberg Town. Land is affected by undermining and the Municipality should as a matter of urgency relocate the people staying here. The Department of Minerals and Energy has already notified the Municipality in writing that it is not safe for people to stay on this property.
- Raphuti village: Located at Leeupoort Township. A formal township application has already been launched, i.e. Leeupoort Vakansiedorp Extension 7 to formalise this area, but proclamation has been drawn out for a number of years. The Provincial Government granted 100 subsidies in favour of this project but no houses have yet been built.
- Donkerpoort Informal: Thabazimbi: Located in Thabazimbi on a part of the Remainder of the farm Donkerpoort 344 KQ, on entering Thabazimbi Town. This settlement is close to a stormwater channel running from Regorogile which could pose danger during high floods and rainy seasons.
- Regorogile Informal: Located in Regorogile Extension 3 & on parts of the farm Rosseauspoort 319-KQ and Apiesdoorn, 316-KQ. This settlement is partly located within an ESKOM servitude area and should be relocated. The remaining area could be formalised into a proper residential township.
- Dwaalboom Informal: Located in the Dwaalboom area on Portion 7 of the farm Dwaalboom, 217-KP. Approx. 10 new units have also been built on Portion 3, Dwaalboom, 217-KQ, and all southwest of the Road D2707.
- Skierlik: Located on the farm Groenvley, 87-KQ in Sentrum next to a school property owned by the Department of Public Works. No infrastructure services. The settlement is growing on a constant basis. Inhabitants are most likely people that were retrenched from nearby farms and other homeless people in the area.
- Northam Illegal Occupants: In Northam Extension 7 people are illegally occupying the houses in this township area.

Another informal settlement affecting Thabazimbi, although it is not situated within the Thabazimbi borders is Thulamashwana. This settlement is on the border between Limpopo and North-West Province on the Anglo mining land. Anglo wishes to relocate these people into Thabazimbi Municipality to a location that is more suitable. For this reason Thulamashwana will be highlighted in the Thabazimbi Housing Strategy. Various formal Mining settlements are also found within the municipal area, i.e. Setaria, Swartklip and Amandelbult.

2.4.5 Local economic development

The WDM is one of the major mining regions within South Africa of which platinum, iron ore, coal and diamonds are mined. The District is also home to a world renowned Biosphere Reserve. The Waterberg Biosphere reserve is an area of 414,000ha and includes various ingenious fauna and flora. The fertile soil has also lead to a competitive advantage in the agricultural sector and opportunities within this sector still needs to be used to its full potential. The area has variety of natural resources has the potential to create countless opportunities for the local population to encourage entrepreneurship and economic development.

The Limpopo Employment Growth and Development Strategy identifies the Waterberg District within the meat production, coal, energy and petrochemicals, platinum, tourism cluster. Depicting the local economy of the municipal area based on the local economic development (LED) Strategy of the municipality, the Waterberg has both comparative and competitive advantages in agriculture, mining and tourism. The tourism comparative advantage is almost evenly distributed in all the six local municipalities.

Mining:

The mining industry in the municipal area contributes to the economic development of the District and Province. Waterberg area is the largest production area of platinum in the Province. Mining of coal and petroleum development in Lephalale has increased demand for the commodity for electricity generation. The coal resource in the Waterberg field is estimated at 76 billion tons, which is more than 40% of the national coal reserve. There is also mining of cement and iron in the municipal area.

The Waterberg area host 70% platinum reserves in Limpopo Province followed by the Sekhukhune District. The platinum mining activity is found in Mokgalakwena and Thabazimbi.

Amandabult and Union section in Thabazimbi have 130 million tons of proven ore reserves between them and the current mining rate is approximately 6 million tons per year between them. Potgieterus Platinum has proven reserves of 280 million tons and its current extraction rate is 57 million tons per year. The municipal area still has the potential of expanding mining activities; currently PPRust Mine is to further expand production to an additional 230,000 ounce of platinum. The Kumba Iron Ore in Thabazimbi is reaching its lifespan while the existence of the town is dominated by mining activities and government services.

The construction of Medupi Power station, the expansion of Grootegeluk and petrochemical production facility will require expansion of accommodation both the mix of single and family units in Lephalale and adjacent municipalities. The development has an impact also on municipal services; including infrastructure and social services.

Agriculture:

Waterberg District contributes almost 30% of the Limpopo Province agricultural activity, agriculture contributes over 4% of the District GGP and it employs around 21% of the labour force of the District. Although named the Waterberg the district is actually classified as a semi-arid area with poor water resources. For crop farmers there have been dramatic changes in many commodity prices leading to changes in cropping patterns. Crops such as cotton, tobacco, maize and sorghum have been badly affected by low international prices and over production and plantings have been reduced significantly, often with negative financial and employment implications. Alternative crops like sunflower, wheat, soya beans, groundnuts and paprika are all internationally traded commodities and thus sensitive to the rand/dollar exchange rate.

These crops therefore are limited substitutes. Lucerne appears to have some potential, especially with the movement towards game ranching, although demand is sensitive to seasonal conditions. Potato production also has some potential although entry is constrained by high input costs. In general there is little cropping that takes place without some form of irrigation. With demand on water resources increasing consistently crop farmers are going to have to examine their returns on the use of water in future.

The cattle and game industry is undergoing significant transformation. Lead by water constraints, areas previously under dry land and irrigation are being consolidated and converted for extensive livestock production. Similarly other former cultivated land and livestock grazing is being converted to game ranching and eco-tourism. Even within the game ranching industry owners are diversifying into lodges and eco-tourism. This general trend has been encouraged by the establishment and development of the Waterberg Biosphere. This trend is expected to continue.

Tourism:

The Waterberg District host internationally renowned tourist attractions that can be used as draw cards to attract more tourists in the area:

- Waterberg Biosphere Reserve- received its international status in March 2001 and now forms part of the World Network of biosphere reserves, registered with UNESCO. The Waterberg Biosphere Reserve is the first “ savannah” biosphere reserve registered in Southern Africa;
- The Makapan Valley World Heritage Site - is a site for one of the most dramatic incidents in the long and fascinating local history near Mokopane town in the Mogalakwena Local municipality. This cooking pot reached a boiling point between the Voortrekkers and the local Ndebeles. The Voortrekkers, which by the 1850s were already well established as far as Schoemansdal near Soutpansberg, used the local area as a thoroughfare. The Makapan Valley was declared as one of the first National Heritage Sites of the new united nation-an act supported by all local communities. In fact, current Chief Mokopane made contributions towards the development of the site as a cultural shrine and tourism icon. The application for the World Heritage Status has been approved by UNESCO.

- Nylsvley Wetland- is a registered Ramsar site (Ramsar is the international convention for the protection of wetlands). More than 400 bird species have been recorded on the 16 000ha wetland extending some 70km between the towns of Modimolle and Mokopane. The heart of the Nylsvley wetland is in the Nylsvley Nature Reserve with five modern bird hides providing perfect view and photo opportunities.
- Marakele National Park – located in the northeast of Thabazimbi, this park is undoubtedly one of the greatest wilderness areas of South Africa. The park has become a „place of sanctuary“ for an impressive variety of wildlife due to its location in the transitional zone between the dry western and moister eastern regions of South Africa.
- Hot Spring Water- the strong mineral springs with a flow of 220,000l of water per hour with a temperature of 52 degrees Celsius gave rise to the establishment of Bela-Bela (Warmbaths). The town`s progress was to a large extent due to the hot water and their healing qualities. The water from the springs is rich with sodium chloride, calcium carbonate and other salts are, amongst others, beneficial to persons suffering from rheumatic ailments. About 400 000 people visit the beautiful swimming baths of the springs annually, mainly during winter months when the climate is pleasant.

2.4.6 Land use

Information for this section was obtained from ‘Information in support of application for rectification of existing mine residue disposal’ (Shangoni Management Services, 2011). A ‘Soil, land use, and land capability’ specialist study will be conducted as part of the EIA process. This section will be updated with information from this specialist study. Any manner in which the environment will affect the proposed activity will be included in the EIAR, depending on the outcome of the specialist study.

Grazing of wild animals occurs on the site, no commercial land use other than mining occurs.

2.5 Existing status of any infrastructure that may be affected

The only infrastructure on the proposed site is an ESKOM servitude and one farm house.

2.6 Existing status of the biophysical environment that will be affected, including the main aspects

2.6.1 Geology

The area is underlain by a succession of steeply dipping shale and quartzite of the Timeball Hill Formation (Pretoria Group) of the Transvaal Sequence. To the north, these sediments are bounded by a banded ironstone formation beyond which the dolomite succession (Malmani Subgroup) of the Transvaal Sequence occurs. The Timeball Hill shale and quartzite are bounded to the south by the mafic rocks of the Marginal Zone of the Bushveld Complex. The andalusite ore body is developed along strike within the alumina rich shale band developed at the base of the banded ironstone ridge.

A number of north-west striking faults intersect the ore body in places. These faults frequently form the saddles within the ridge. A narrow diabase dyke has intruded in a similar orientation to the faults. Available geological maps show that a diabase sill occurs immediately south of the mining activities. The sill is conformable to the steeply dipping (55° towards the south-east) shale bands.

2.6.2 Climate

Information for this section was obtained from 'Information in support of application for rectification of existing mine residue disposal' (Shangoni Management Services, 2011). The information in this section will be updated with any relevant information from the specialist studies to be conducted as part of the EIA process. Any manner in which the environment will affect the proposed activity will be included in the EIAR, depending on the outcome of the specialist studies.

2.6.2.1 Rainfall

The Thabazimbi area has a mean annual precipitation (MAP) of 645mm, of which 90% falls in the period October to April. The highest rainfall in a single day measures since 1981 was 122mm on the 15th of March 1991. Refer to Table 17 for the rainfall data from 1935 to 2010. The maximum rainfall in a 24 hour period for 2012 occurred in February and January. Table 18 below shows the maximum rainfall per 24 hours recorded for each month in the past year.

Table 17: Rainfall data from 1935-2010

THABAZIMBI RAINFALL REPORT													
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1935							0.00	0.00	0.00	0.00	5.10	102.10	107.20
1936	65.50	169.20	135.90	0.00	68.80	0.00	0.00	0.00	0.00	74.40	111.80	0.00	625.60
1937	245.10	159.80	68.60	29.70	0.00	0.00	0.00	0.00	17.80	72.60	20.60	175.80	790.00
1938	147.10	70.40	22.60	98.60	0.00	6.40	0.00	0.00	0.00	22.60	21.10	138.20	527.00
1939	45.50	269.20	158.00	0.00	44.50	0.00	30.00	4.80	11.70	58.70	185.40	74.20	882.00
1940	123.70	70.90	132.10	38.60	29.00	88.90	0.00	3.60	76.20	32.00	54.40	231.90	881.30
1941	83.10	48.80	14.70	78.50	0.00	0.00	0.00	0.00	9.10	13.00	16.50	139.70	403.40
1942	81.00	108.50	143.30	0.00	8.90	0.00	0.00	10.90	37.80	109.50	52.80	97.80	650.50
1943	102.10	49.00	104.60	140.20	40.10	1.00	3.30	13.20	29.50	125.70	29.50	38.10	676.30
1944	170.20	220.50	58.40	2.30	14.70	55.60	0.00	0.00	4.10	114.80	125.50	18.80	784.90
1945	74.70	78.50	116.80	34.80	3.30	0.00	3.30	0.00	0.00	55.40	63.20	34.80	464.80
1946	287.00	158.80	76.50	19.80	0.00	0.00	0.00	0.00	0.00	13.20	39.10	37.80	632.20
1947	106.20	109.00	159.00	30.20	0.00	0.00	2.30	0.00	6.90	39.90	203.50	108.00	765.00
1948	75.40	37.30	152.10	44.50	15.50	0.00	0.00	0.00	10.20	67.80	151.60	2.50	556.90
1949	179.80	49.50	53.30	13.70	8.40	25.90	1.80	0.00	0.00	30.70	69.60	237.20	669.90
1950	68.10	40.40	53.60	61.00	37.10	0.00	0.00	0.00	4.80	6.10	59.40	247.90	578.40
1951	69.10	82.30	61.70	50.30	37.10	5.10	16.00	16.30	3.30	105.90	24.10	56.40	527.60
1952	120.90	141.70	32.30	29.70	33.50	1.00	0.00	0.00	0.30	23.10	142.20	178.10	702.80
1953	70.60	179.60	153.70	112.00	6.60	0.00	0.00	0.00	0.00	23.60	125.50	89.90	761.50
1954	213.40	82.00	27.90	67.10	4.80	0.00	0.00	0.00	3.00	20.80	96.50	119.40	634.90
1955	165.10	358.10	50.80	27.40	10.20	13.00	0.00	0.00	0.00	47.80	71.60	344.40	1088.40
1956	43.70	189.50	153.40	15.20	38.10	0.00	0.00	0.00	30.50	20.60	71.10	96.00	658.10
1957	88.40	93.00	44.70	32.50	17.50	64.30	63.00	41.90	38.90	48.00	36.60	32.80	601.60
1958	133.60	65.00	33.00	57.20	1.80	0.00	0.00	0.00	30.00	55.10	106.20	175.00	656.90
1959	179.60	123.20	92.50	40.60	25.70	0.00	2.00	8.10	0.00	15.00	117.60	165.90	770.20

THABAZIMBI RAINFALL REPORT													
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1960	35.80	98.30	79.50	74.40	14.00	0.00	1.00	18.00	1.50	37.60	199.10	127.50	686.70
1961	50.60	79.80	47.50	76.00	32.50	10.50	0.00	0.00	0.00	19.80	124.00	102.00	542.70
1962	86.50	30.50	23.00	77.50	0.00	3.60	0.00	2.50	0.00	21.00	97.50	76.20	418.30
1963	75.50	35.60	0.50	56.40	9.00	51.00	0.00	0.00	0.00	57.50	87.00	67.60	440.10
1964	143.00	39.60	4.00	42.00	0.00	1.00	0.00	0.00	5.60	151.00	68.00	103.60	557.80
1965	60.00	46.60	11.00	64.00	0.00	0.00	0.00	0.00	0.00	0.00	91.00	35.50	308.10
1966	90.50	67.00	9.00	24.00	2.50	32.00	0.00	0.00	63.50	53.50	41.00	111.00	494.00
1967	326.70	198.60	100.50	158.00	16.00	0.00	0.00	16.50	0.00	20.00	89.50	35.30	961.10
1968	147.60	50.50	88.00	78.50	38.00	0.00	0.00	0.00	0.00	9.00	103.00	84.60	599.20
1969	38.00	83.60	138.20	21.60	27.00	0.00	0.00	1.50	1.00	52.60	57.00	233.60	654.10
1970	144.00	36.00	35.60	10.50	11.00	8.00	7.60	0.00	13.50	55.00	89.50	109.00	519.70
1971	202.20	120.20	47.00	38.60	20.00	0.00	0.00	0.00	20.00	46.00	152.20	68.10	714.30
1972	227.00	50.60	143.00	16.00	6.10	0.00	0.00	0.00	4.00	12.50	92.00	66.00	617.20
1973	62.50	166.60	57.40	40.00	0.00	0.00	0.00	0.00	15.00	94.50	83.00	169.00	688.00
1974	98.50	54.50	120.50	32.00	0.00	0.00	0.00	6.50	18.00	20.50	92.00	165.50	608.00
1975	205.00	144.00	30.00	131.50	41.50	5.00	0.00	0.00	0.00	10.00	46.50	189.50	803.00
1976	127.00	122.50	108.50	30.00	32.50	0.00	0.00	0.00	14.50	60.00	107.00	148.50	750.50
1977	192.00	55.00	100.50	79.00	0.00	0.00	0.00	18.50	98.00	48.00	45.50	204.00	840.50
1978	325.00	108.00	98.00	41.00	0.00	0.00	0.00	0.00	20.00	54.00	58.50	57.50	762.00
1979	59.50	95.50	108.00	22.00	40.00	0.00	2.00	23.00	11.00	76.00	174.00	55.00	666.00
1980	151.50	103.50	53.00	23.50	0.00	0.00	0.00	0.00	29.50	30.50	113.50	157.50	662.50
1981	141.00	46.00	85.00	18.00	0.00	9.00	0.00	22.00	16.50	8.00	124.50	58.50	528.50
1982	152.00	54.50	120.50	13.00	0.00	0.00	10.00	0.00	0.00	77.00	53.50	158.90	639.40
1983	65.00	16.00	90.00	44.00	2.00	9.00	0.00	20.00	15.00	27.50	130.00	135.20	553.70
1984	14.50	24.00	126.00	0.00	0.00	41.00	29.00	0.00	5.00	92.00	96.00	172.40	599.90
1985	133.60	63.00	53.00	0.00	2.00	0.00	0.00	10.00	6.00	58.50	26.50	152.60	505.20

THABAZIMBI RAINFALL REPORT													
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1986	68.50	78.50	80.50	56.00	0.00	0.00	0.00	4.00	29.50	88.00	130.00	102.50	637.50
1987	68.50	87.50	104.50	14.00	0.00	0.00	0.00	18.00	8.50	27.00	151.00	98.50	577.50
1988	103.00	163.50	140.50	54.50	0.00	1.00	0.00	2.00	27.00	92.50	32.00	144.00	760.00
1989	54.50	240.50	43.50	42.50	0.00	7.80	0.00	6.50	0.00	36.20	93.20	134.80	659.50
1990	86.90	111.20	94.00	57.00	31.70	0.00	0.00	0.00	10.30	22.10	18.00	69.20	500.40
1991	268.30	141.30	206.90	0.00	0.00	0.00	0.00	0.00	4.00	34.00	115.00	148.00	917.50
1992	34.50	46.70	82.60	34.60	0.00	0.00	0.00	0.00	0.00	38.00	131.70	80.50	448.60
1993	53.90	143.20	159.70	43.40	0.00	0.00	0.50	0.00	18.00	74.40	76.30	137.70	707.10
1994	115.90	107.50	12.70	3.80	0.00	0.00	0.00	0.00	0.80	50.30	30.10	119.10	440.20
1995	76.80	46.80	110.50	19.10	19.00	0.00	0.00	5.50	1.00	52.00	123.40	144.60	598.70
1996	127.80	324.40	52.50	42.00	7.30	0.00	1.90	0.00	0.40	47.80	77.40	148.70	830.20
1997	261.10	20.60	133.40	11.00	49.30	1.00	1.10	0.30	42.70	22.00	76.60	96.80	715.90
1998	115.10	55.20	17.70	8.50	0.00	0.00	0.00	2.00	2.90	29.70	99.60	251.20	581.90
1999	95.10	18.90	24.70	26.80	71.50	0.50	0.00	0.00	2.70	42.40	24.00	265.30	571.90
2000	308.00	230.80	119.90	27.00	23.00	15.90	1.30	0.00	0.00	74.80	48.30	81.50	930.50
2001	11.10	151.20	49.30	72.30	35.80	2.30	0.00	0.00	19.10	129.30	176.10	66.00	712.50
2002	26.10	0.00	35.60	36.40	0.50	44.30	0.00	2.00	11.00	60.70	0.70	207.80	425.10
2003	111.30	75.10	6.00	0.00	0.00	17.30	0.00	0.00	0.00	42.20	134.30	122.50	508.70
2004	130.20	159.80	203.10	63.90	0.00	0.70	13.70	0.00	0.00	2.10	67.30	176.30	817.10
2005	84.30	18.70	77.00	35.30	0.00	0.00	0.00	0.00	0.00	0.00	156.90	110.50	491.70
2006	256.20	326.80	138.90	0.00	4.00	0.00	0.00	6.90	0.00	76.50	56.70	116.80	982.80
2007	73.90	10.80	0.50	33.80	0.00	19.60	4.30	0.00	52.00	92.50	21.80	203.00	512.20
2008	259.02	37.60	101.40	0.00	14.00	3.00	3.40	0.00	0.00	1.20	122.70	67.30	609.62
2009	169.80	100.40	62.40	0.00	11.70	64.20	0.10	0.60	35.00	87.40	47.60	49.60	628.70
2010	146.10	57.10	106.50	159.70	73.00	0.00	0.00	0.00	0.00				542.40

THABAZIMBI RAINFALL REPORT													
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
MND GEM	125.32	102.64	81.88	41.03	14.41	8.12	2.60	3.75	12.32	48.15	86.15	121.72	48626.12

Table 18: Maximum rainfall in 24-hour period in 2010

MONTH	MIN RAINFALL (mm)	MAX RAINFALL (mm)	AVG RAINFALL (mm)
January	2.8	222.5	115.0
February	4.3	223.5	71.2
March	6.3	198.4	71.1
April	0.8	95.5	23.4
May	0.0	31.8	7.8
June	0.0	55.1	12.0
July	0.0	10.2	2.6
August	0.0	7.1	1.2
September	0.0	68.3	12.5
October	0.0	81.3	32.9
November	1.8	129.0	71.0
December	1.0	164.8	87.3
Total	431.8	770.6	541.8

2.6.2.2 Temperatures

The Thabazimbi area is known for its relatively high temperatures, with day temperatures that may rise above 40°C in summer to a few degrees below zero in winter. In summer, the mean temperature at 14h00 is 30°C, and in winter 21°C. At 08h00, the mean temperature is 23°C in summer and 8°C in winter. The mean monthly maximum and minimum temperatures are shown in the Table 19 below.

Table 19: Mean monthly maximum and minimum temperatures

MONTH	MAXIMUM TEMP. (°C)	MINIMUM TEMP. (°C)
January	33,4	20.7
February	32,3	21.1
March	31,9	19.0
April	29,3	16.6
May	27,3	12.8
June	25,1	10.1
July	25,1	11.1
August	27,9	14.4
September	29,8	17.6
October	31,9	19.9
November	32,0	20.4
December	31,6	20.7

2.6.2.3 Wind direction and speed

From the wind roses in Figure 2 it is evident that the mean wind direction is south to south-east. Gale force winds occur very rarely.

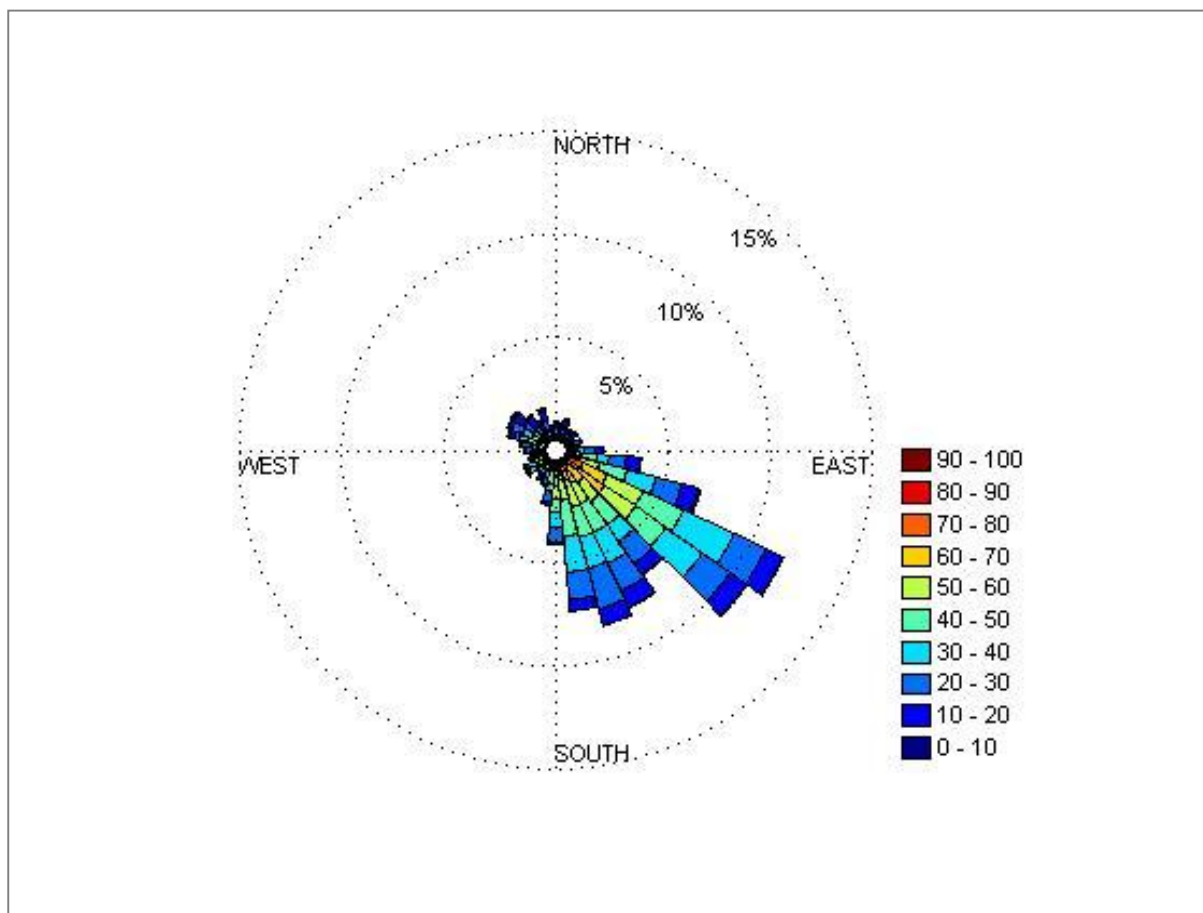


Figure 2: Annual wind direction

2.6.2.4 Evaporation

The monthly evaporation for Thabazimbi is not available. The monthly evaporation for Swartklip Rustenburg Platinum Mine, about 80 km from Thabazimbi, is given in Table 20 below.

Table 20: Mean monthly evaporation

MONTH	SYMONS PAN (mm)	"A" PAN (mm)
January	183	219
February	156	186
March	145	173
April	118	141
May	98	117
June	77	98
July	83	115
August	114	167
September	156	208
October	192	256
November	191	248
December	200	247

2.6.2.5 Incidence of extreme climatic conditions

The incidence of hail varies from light to severe hailstorms, although the latter are very rare. Frost occurs in the low-lying areas of Thabazimbi. Strong winds occur sporadically, mainly from the south, and blow at a mean speed of 4.7 to 6.4m/s.

2.6.3 Topography

Information for this section was obtained from 'Information in support of application for rectification of existing mine residue disposal' (Shangoni Management Services, 2011). The information in this section will be updated with any relevant information from the specialist studies to be conducted as part of the EIA process. Any manner in which the environment will affect the proposed activity will be included in the EIAR, depending on the outcome of the specialist studies.

The site falls within a low mountainous terrain morphological unit. The northern part of the site is a mountainous area, namely the Witfonteinrand range. The site slopes from the range into a southern direction.

2.6.4 Soil

Information for this section was obtained from 'Information in support of application for rectification of existing mine residue disposal' (Shangoni Management Services, 2011). A 'Soil, land use, and land capability' specialist study will be conducted as part of the EIA process. This section will be updated with information from this specialist study. Any manner in which the environment will affect the proposed activity will be included in the EIAR, depending on the outcome of the specialist study.

The soils are, for the most part, stony red soils with a high base status. Soils have a moderate water holding capacity. The swell-shrink potential of the clays in the soils is low. Soils are structurally favourable for arable agriculture; however it has scarce or no beneficial water-retaining layers below the rooting zone.

In terms of nutrients, as is the case with most soils under dry climatic conditions, the soils are fertile. In the undisturbed state the soils are not inherently erodible. There are no signs of erosion except in disturbed sites (along the roadways, etc.) in the area. Although topsoil is present it is not in such thick layers to promote topsoil recovery on most parts of the site.

2.6.5 Land capability

Information for this section was obtained from 'Information in support of application for rectification of existing mine residue disposal' (Shangoni Management Services, 2011). A 'Soil, land use, and land capability' specialist study will be conducted as part of the EIA process. This section will be updated with information from this specialist study. Any manner in which the environment will affect the proposed activity will be included in the EIAR, depending on the outcome of the specialist study.

Due to climatological conditions in this area, no soils on the property are classified as arable. Soils that would physically be arable are classified as grazing land in this instance while most of the land that has been mined is occupied by more than 50% rock by volume, and 50% by wilderness land.

2.6.6 Vegetation

Information for this section was obtained from 'Information in support of application for rectification of existing mine residue disposal' (Shangoni Management Services, 2011). An 'Ecological specialist study will be conducted as part of the EIA process. This section will be updated with information from this specialist study. Any manner in which the environment will affect the proposed activity will be included in the EIAR, depending on the outcome of the specialist study.

The site falls within the SVcb1-Dwaalboom Thornveld vegetation unit. This vegetation type occurs in the Limpopo and North West Provinces on the flats north of the Dwarsberge and associated ridges mainly west of the Crocodile River in the Dwaalboom area but including a patch around Centrum. South of the ridges it extends eastwards from the Nietverdiend area, north of the Pilanesberg to the Northam area. Altitude is between 900-1,200mamsl

The vegetation and landscape features can be described as: Plains with a layer of scattered, low to medium high, deciduous microphyllous trees and shrubs with a few broad-leaved tree species, and an almost continuous herbaceous layer dominated by grass species.

Acacia tortilis and *A. nilotica* dominate on the medium clays (at least 21% clay in the upper soil horizon but high in the lower horizons. On particularly heavy clays (>55% clay in all horizons) most other woody plants are excluded and the diminutive *A. tenuispina* dominates at a height of less than 1m above ground on the sandy clay loam soils (with not more than 35% in the upper horizon but high in the lower horizons). *A. erubescens* is the most prominent tree. The alteration of these substrates types creates a mosaic of patches typically 1–5km across, the unit west of Thabazimbi.

The following are important taxa of this vegetation type:

- Tall trees: *Acacia erioloba*;
- Small trees: *Acacia erubescens*, *A. nilotica*, *A. tortilis* subsp. *heteracantha*, *A. fleckii*, *A. mellifera* sub-spp *detinens*, *Combretum imberbe*, *Rhus lancea*, *Ziziphus mucronata*;
- Tall shrubs: *Acacia hebeclada* subsp. *hebeclada*, *Combretum hereroense*, *Diospyros lycoides* subsp. *lycoides*, *Euclea undulate*, *Grewia flava*, *Tarchonanthus camphorates*;
- Low shrubs: *Acacia tenuispina*, *Abutilon austro-africanum*, *Aptosimum elongatum*, *Hirpicium bechuanense*, *Pavonia burchelli*, *Solanum delagoense*;
- Succulent shrubs: *Kalanchoe rotundifolia*, *Talinum caffrum*;
- Herbaceous climber: *Rhynchosia minima*;

- Graminoids: *Aristida bipartite*, *Bothriochloa insculpta*, *Digitaria eriantha* sub-spp *eriantha*, *Ischaemum afrum*, *Panicum maximum*, *Cymbopogon pospischilii*, *Eragrostis curvula*, *Sehima galpinii*, *Setaria incrassata*; and
- Herbs: *Heliotropium ciliatum*, *Kohautia caespitose* subsp. *brachyloba*, *Nidorolla hottentotica*.

In terms of conservation status this vegetation type is the least threatened. The target is set at 19% but only 6% is statutorily conserved, mostly within the Madikwe National Park in the west. Approximately 14% is transformed mainly due to cultivation. The erosion is low to very low. This vegetation type is mostly used for extensive cattle grazing.

2.6.7 Animal life

Information for this section was obtained from 'Information in support of application for rectification of existing mine residue disposal' (Shangoni Management Services, 2011). An 'Ecological' specialist study will be conducted as part of the EIA process. This section will be updated with information from this specialist study. Any manner in which the environment will affect the proposed activity will be included in the EIAR, depending on the outcome of the specialist study.

According to information from previous EMPs for RAM, the following information is applicable. The following larger mammals (amongst many more) are found in the general area.

Table 21: Larger mammals found in the general area

COMMON NAME	SCIENTIFIC NAME
Impala	<i>Aepyceros melampus</i>
Kudu	<i>Tragelaphus strepicerus</i>
Klipspringer	<i>Oreotragus oreotrachus</i>
Grey Rhebuk	<i>Pelea capreolus</i>
Mountain Rhebuk	<i>Redunca fulvorufula</i>
Bushbuck	<i>Tragelaphus scriptus</i>
Common Duiker	<i>Sylvicapra grimmia</i>
Steenbuck	<i>Raphicerus campestris</i>
Blesbuck	<i>Damaliscus dorcas</i>
Warthog	<i>Phacochoerus aethiopicus</i>
Caracal	<i>Felis caracal</i>
Serval	<i>Felis serval</i>
African Wild Cat	<i>Felis lydica</i>
Leopard	<i>Panthera pardus</i>
Porcupine	<i>Hystrix africae australis</i>
Brown Hyaena	<i>Hyaena brunnea</i>
Slender Mongoose	<i>Galarella sanguinea</i>
Chacma Baboon	<i>Papio ursinus</i>

2.6.8 Surface water

2.6.8.1 General description

Information for this section was obtained from 'Information in support of application for rectification of existing mine residue disposal' (Shangoni Management Services, 2011). A 'Geohydrological' specialist study, 'Fauna and Flora' specialist study and a stormwater management plan (SWMP) will be conducted as part of the EIA process. This section will be updated with information from these specialist studies. Surface water qualities will also be updated with the most recent quality results. Any manner in which the environment will affect the proposed activity will be included in the EIAR, depending on the outcome of the specialist studies.

The mining operation is located in the Limpopo catchment, Bierspruit Sub-catchment a part of the Crocodile Catchment, in the quaternary catchment area A2. The operation is located in the Crocodile (West) and Marico Water Management Area. Surface water draining from the site mostly takes place in the form of overland flow collecting in the network of non-perennials originating on the site. The non-perennials drain into the Bierspruit to the south of RAM, which in turn flows into the Crocodile River situated north-east from the site. Most of the runoff is diverted away from the quarries by means of trenches.

The catchment area characteristics (including mean annual runoff (MAR) in m³) for the above mentioned catchment area and the upstream and downstream catchment areas are indicated in Table 22 below.

The MAR for all the catchment areas was obtained from multiplying the mean annual rainfall (615.5mm per year according to the past fifteen year's data) with the size of the catchment area. This method does not allow for infiltration, evaporation or a variation in the mean annual rainfall for the catchment area.

Table 22: Catchment area characteristics

CATCHMENT AREA	AREA (km ²)	MEAN ANNUAL RUNOFF (m ³)
Mine sub-catchment (before expansion)	88	232.73
Mine sub-catchment (after expansion)	91.5	237.31
Upstream of the operation	925	754.54
Downstream of the operation	950	764.67
Convergence with the Crocodile River	1 068	810.77

Surface water collects in the network of non-perennial watercourses and flow mainly to the west, collecting in the Bierspruit. The Bierspruit feeds into the Crocodile River approximately 2.8km in a northerly direction. The Crocodile River flows in a northern direction. The table below indicates the hydrological data for the Bierspruit.

Table 23: Hydrological data for the Bierspruit and Donga Stream

BIERSPRUIT CATCHMENT CHARACTERISTICS	
Parameter	Bierspruit
Catchment area km ²	2 638
Slope catchment (%)	1.5
Slope channel (%)	0.3
Stream length (km)	96
Time of concentration (hours)	20
MAP (mm)	600

2.6.8.2 Rainfall depths and peak flows

The rainfall depths and peak flow velocities, volumes and levels are indicated in the table below.

Table 24: Rainfall depths and peak flows

RAINFALL DEPTHS AND PEAK FLOW VELOCITIES, VOLUMES AND LEVELS									
Site	Area km²	Recurrence interval (years)							
		1:2	1:5	1:10	1:20	1:50	1:100	1:200	RMF*
Rainfall depth, mine (mm)		61	83	100	118	144	166	190	
Rainfall depth, Bierspruit catchment (mm)		58	80	97	115	142	165	190	
Flood peaks Bierspruit (m ³ /s)	2638	130	215	340	490	870	1190	1430	1800
Flood volumes Bierspruit (10 ⁶ m ³)	2638	9.8	16.3	25.6	37.0	65.7	89.9	-	-
Flood peak levels in metres above sea level Bierspruit			907.5			909.5	910.2	910.6	911.2

*RMF: Regional Maximum Flood

The Bierspruit catchment, although it is steep in its origin, is generally flat with a wide river channel. The 1:2 year storm event fills the river channel, but with the wide floodplain there is a relatively low rise in water levels with an increase in the intensity of the storm event.

2.6.8.3 Normal flow during dry weather

The normal dry weather flow in the affected water course is gentle.

2.6.8.4 Surface water quality

Surface water quality results are given in Table 25 below. This will be updated as part of the EMP.

Table 25: Surface water quality results

ANALYSIS	UNITS	QUALITY CRITERIA		2012/09/27	2012-01-23	2012-01-23	2012-01-23	2012/09/27	2012-01-23	2012/09/27	2012-01-23	2012/09/27	2012-01-23	2012-01-23	2012-01-23
		Recommended operational limits#	Maximum allowable for limited duration##												
		Maximum	Maximum												
pH Value	pH units	9.5	10	8.05	8.05	8.40	8.53	8.37	8.34	8.54	8.69	7.31	7.09	7.26	8.37
Conductivity	mS/m	150	370	69.6	68.0	105.7	154.7	68.9	102.5	167.4	113.4	76.2	97.1	90.7	68.5
Turbidity	NTU	1	5	0.78	0.35	4.86	31.40	1.35	22.80	0.32	6.55	0.09	3.4	5.00	0.54
Colour	mg/l Pt	20	50	8	5	29	29	48	22	4	13	0	13	23	7
Tot. Chlorine*	A. mg/l Cl ₂	Alert level: <0.2		0.42	0.06	-	-	-	-	-	-	-	-	-	0.02
E. Coli	count/100ml	-	1	0	0	6500	40	0	440	63	2	-	1	35	0
Total coli.	count/100ml	Alert level: >10		1	1	41500	3600	5	8500	39000	14000	-	95	500	3
Iron	mg/l Fe	0.2	2	<0.01	0.01	0.01	0.01	<0.01	0.01	0.01	0.01	<0.01	0.01	0.01	0.01
Manganese	mg/l Mn	0.1	1	<0.02	0.01	0.01	0.01	0.03	0.01	0.04	0.01	0.01	0.01	0.01	0.01
Ammonium	mg/l N	1	2	1.68	0.226	0.305	0.373	0.577	0.142	0.203	0.23	0.02	0.268	0.144	0.16
Chromium	mg/l Cr	0.1	0.5	<0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cobalt	mg/l Co	0.5	1	<0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Copper	mg/l Cu	1	2	0.01	0.01	0.01	0.03	0.01	0.02	<0.01	0.02	0.01	0.02	0.02	0.01
Nickel	mg/l Ni	0.15	0.35	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Zinc	mg/l Z	5	10	0.01	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Temperature*	°C	Alert level: >30		29.1	29.9	22.2	22.4	29.5	21.6	28.3	22	28.3	-	21.9	22.1
Chloride	mg/l Cl	200	600	88.7	78.0	127	256.5	121.4	112	157.9	162	13.6	22	8.5	79
Nitrite*	mg/l N	Alert level: >1		0.9	0.01	0.01	0.01	0.42	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Sulphate	mg/l SO ₄	400	600	69.39	83.1	67.6	120.3	57.94	63.9	163.6	77	15.33	16.57	11.25	92.8

ANALYSIS	UNITS	QUALITY CRITERIA		2012/09/27	2012-01-23	2012-01-23	2012-01-23	2012/09/27	2012-01-23	2012/09/27	2012-01-23	2012/09/27	2012-01-23	2012-01-23	2012-01-23
		Recommended operational limits#	Maximum allowable for limited duration##												
		Maximum	Maximum												
Aluminium	mg/l Al	0.3	0.5	0.01	0.01	0.01	0.01	<0.01	0.01	<0.01	0.01	<0.01	0.01	0.01	0.01
Cadmium	mg/l Cd	0.005	0.01	<0.003	0.003	0.008	0.023	<0.003	0.013	<0.003	0.035	<0.003	0.015	0.003	0.003
Vanadium	mg/l V	0.2	0.5	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Calcium	mg/l Ca	150	300	39.94	32.19	40.15	71.29	38.41	49.54	93.05	34.8	84.23	63.37	83.82	31.85
Hardness*	mg/l CaCO ₃	250	300	222.19	126.15	292.2	479.9	217.87	336.5	618.81	335.1	427.65	386.4	314.7	123.5
Magnesium	mg/l Mg	70	100	29.73	11.11	46.61	73.3	29.61	51.67	93.83	60.26	52.76	55.39	25.58	10.67
Phosphate, Ortho*	mg/l P	1	10	0.01	0.06	0.09	0.11	0.01	0.06	0.01	0.07	0.01	0.2	0.08	0.05
Potassium	mg/l K	50	100	7.48	6.7	5.32	11.51	7.64	5.09	3.92	3.63	2.41	4.22	1.67	6.8
Sodium	mg/l Na	200	400	60.94	51.77	82.75	79.82	61.09	59.32	66.28	83.27	11.48	21.72	11.41	49.61

#Class 1 of SANS specification, unless otherwise stated

##Class 2 of SANS specification, unless otherwise stated

* Recommended internal criteria (NOT SANS SPECIFICATION)

RA1: Vaalkop water supply- Drinking water

RA2: Quarry water

RA5: Quarry water

RA7: Run-off water

RA8: Plant Motswere

RA9: Plant Complex 2

The conductivity for RA3 in January and RA5 in September are higher than the recommended operational limits. The turbidity results for RA2 (January), RA4 (September) and RA8 (January) are higher than the recommended operational limits, with RA# (January) and RA4 (January) above the maximum allowable for limited duration. The colour for RA3 (January), RA4 (January, September), and RA8 are above recommended operational limits. Chlorine was not measured throughout, but is higher than the maximum allowable for limited duration for both RA1 (January) and RA9 (January).

E coli was above maximum allowable for limited duration for RA2 (January), RA3 (January), RA4 (January), RA5 (January and September) and RA8 (January). Total coli were above maximum allowable for limited duration for the same samples as above as well as RA7 (January).

Ammonium was mostly within limits with only RA1 (September) above recommended operational limits. Chloride was also mostly within limits with only RA3 (January) above recommended operational limits. The results for RA2 (January), RA3 (January), RA4 (January), RA5 (January) and RA7 (January) were above the recommended operational limits for Cadmium. Hardness was in general high with RA2 (January) above recommended operational limits and RA3 (January), RA4 (January), RA% (January and September), RA7 (January and September) and RA8 (January) above maximum allowable for limited duration. Magnesium were mostly within limits with only RA3 (January) and RAQ5 (September) above recommended operational limits.

2.6.8.5 Water authority

The relevant water authority in this instance is the DWA – Lower Crocodile (West) and Marico (Hartbeespoort) regional office.

2.6.8.6 Wetlands

It is unclear at this stage whether there are any wetlands on the area.

2.6.8.7 Water use

Surface water use in the area is mainly for agricultural purposes, with little domestic use. Agricultural water uses include both irrigation and livestock watering.

2.6.9 Groundwater

Information for this section was obtained from 'Information in support of application for rectification of existing mine residue disposal' (Shangoni Management Services, 2011). A 'Geohydrological' specialist study, will be conducted as part of the EIA process. This section will be updated with information from this specialist study. Groundwater qualities will also be updated with the most recent quality results. Any manner in which the environment will affect the proposed activity will be included in the EIAR, depending on the outcome of the specialist study.

2.6.9.1 Depth of water table

The groundwater depths, locations, depth of the water table as well as the estimated yield and aquifer type for the various boreholes are indicated in the following table:

Table 26: Boreholes and relevant data

BOREHOLE NO	LOCATION (FARM)	DEPTH (m)	DEPTH TO WATER TABLE (m)	ESTIMATED YIELD (l/hr)	AQUIFER TYPE
1	Grootfontein	135	± 100	500	Dolomite
2	Grootfontein	35	21.2	20 000	Dolomite
3	Grootfontein	200	12.1	15 000	Dolomite
4	Grootfontein	20	11.6	15 000	Dolomite
5	Grootfontein	50	±40	15 000	Dolomite
6	Grootfontein	50	18.4	5 000	Dolomite
7	Grootfontein	100	7.2	1 800	Shale
8	Grootfontein	100	6.7	1 800	Shale
9	Grootfontein	97	>40	5 000	Shale
10	Roodedam	85	27	5 000	Shale/sill
11	Roodedam	-	-	-	Shale/sill
12	Roodedam	-	29.8	-	Shale/sill
13	Grootfontein	40	9.3	15 000	Shale/sill
14	Grootfontein	40	-	15 000	Shale/sill
15	Grootfontein	-	-	-	-
16	Roodedam	-	-	5 000	Shale
17	Buffelsfontein	±50	38.5	-	Dolomite
18	Buffelsfontein	±50	>40	-	Dolomite
19	Buffelsfontein	50	28.1	25 000	Dolomite
20	Tygerkloof	±80	>40	10 000	Dolomite
21	Tygerkloof	±80	>40	25 000	Dolomite

From the above table it is apparent that the water table depth in proximity to the surface varies with topography and underlying geology. There are three aquifer types located in the study area, also indicated in the above table.

RAM uses groundwater from the dolomite aquifer for process supply. The remainder of the boreholes listed in the table above supplies the surrounding farming community with water for domestic and agricultural use. The agricultural use is divided into irrigation and livestock watering.

2.6.9.2 Groundwater quality

Groundwater quality results are as follow (to be updated as part of EMP):

Table 27: Groundwater quality results

ANALYSIS	UNITS	QUALITY CRITERIA		2012/09/27 RA6	2012-01-23 RA6
		Recommended operational limits#	Maximum allowable for limited duration##		
		max	max		
pH Value	pH units	9.5	10	7.50	7.40
Conductivity	mS/m	150	370	102.8	125.7
Turbidity	NTU	1	5	0.08	2.85
Colour	mg/l Pt	20	50	0	20
Tot. Chlorine* A.	mg/l Cl ₂	Alert level: <0.2		-	-
E. Coli	count/100ml	-	1	0	0
Total coli.	count/100ml	Alert level: >10		33	33000
Iron	mg/l Fe	0.2	2	<0.01	0.01
Manganese	mg/l Mn	0.1	1	0.01	0.01
Ammonium	mg/l N	1	2	0.059	0.3
Chromium	mg/l Cr	0.1	0.5	0.01	0.01
Cobalt	mg/l Co	0.5	1	0.01	0.01
Copper	mg/l Cu	1	2	<0.01	0.03
Nickel	mg/l Ni	0.15	0.35	0.01	0.01
Zinc	mg/l Z	5	10	0.01	0.01
Temperature*	°C	Alert level: >30		27.3	22
Chloride	mg/l Cl	200	600	87.4	84
Nitrite*	mg/l N	Alert level: >1		0.01	5.74
Sulphate	mg/l SO ₄	400	600	8.99	9.03
Aluminium	mg/l Al	0.3	0.5	<0.01	0.01
Cadmium	mg/l Cd	0.005	0.01	<0.003	0.019
Vanadium	mg/l V	0.2	0.5	0.01	0.01
Calcium	mg/l Ca	150	300	86.12	60.59
Hardness*	mg/l CaCO ₃	250	300	450.82	401.7
Magnesium	mg/l Mg	70	100	57.24	60.79
Phosphate, Ortho*	mg/l P	1	10	0.01	0.15
Potassium	mg/l K	50	100	3.9	3.9
Sodium	mg/l Na	200	400	50.1	52.36

#Class 1 of SANS specification, unless otherwise stated

##Class 2 of SANS specification, unless otherwise stated

* Recommended internal criteria (NOT SANS SPECIFICATION)

RA6: Boreholes water

The turbidity in January was higher than the recommended operational limits. Total coli and hardness levels were in both January and September higher than the maximum allowable for limited duration. Nitrate levels in January 2012 were higher than maximum allowable for limited duration.

2.6.10 Air quality

Information for this section was obtained from 'Information in support of application for rectification of existing mine residue disposal' (Shangoni Management Services, 2011). An 'Air Quality Impact Assessment' specialist study will be conducted as part of the EIA process. This section will be updated with information from this specialist study. Any manner in which the environment will affect the proposed activity will be included in the EIAR, depending on the outcome of the specialist study.

Other mining/prospecting operations in the Thabazimbi area that impact on the air quality include Thabazimbi Mine and other industrial activities in or closer to the town of Thabazimbi. Existing mining operations in the area include Amandelbult Platinum Mine with further impacts expected from a proposed mine, Cronimet Chrome Mine.

2.6.11 Environmental noise

Information for this section was obtained from 'Information in support of application for rectification of existing mine residue disposal' (Shangoni Management Services, 2011). A 'Noise Assessment' specialist study will be conducted as part of the EIA process. This section will be updated with information from this specialist study. No noise level data is available prior to mining operations commencing. Any manner in which the environment will affect the proposed activity will be included in the EIAR, depending on the outcome of the specialist study.

Noise levels are measured at the plants, engineering (workshops), quarry, and laboratory. Refer to Table 28 below for the noise results between January 2012 and September 2012.

Table 28: Noise results for the period January 2012 and September 2012

AREA	NOISE (DBA)
Laboratory	76.1
Crushing and screening and Plant 5	83.5
Crushing and screening	85.1
Quarry	75.6
Workshops and engineering	58.7

According to above table, noise at the plants are above the limit of 80dBA for occupational standards. All noise results are above the environmental noise limits of 35dBA.

2.6.12 Visual aspects

This section will be updated during site visits. The site is directly adjacent the R510 Road from Rustenburg to Ellisras (Lephalale). Mining activities are, however, not visible from this road due to the fact that the site is densely vegetated. The visual aspects will not affect the manner in which the activity is operated.

2.6.13 Sensitive landscapes

This section will depend on the outcome of all specialist studies. Any manner in which the environment will affect the proposed activity will be included in the EIAR, depending on the outcome of the specialist studies.

SECTION 3: IDENTIFICATION OF THE ANTICIPATED ENVIRONMENTAL, SOCIAL OR CULTURAL IMPACTS, INCLUDING THE CUMULATIVE IMPACTS, WHERE APPLICABLE

3.1 Description of the proposed project including a map showing the spatial locality of infrastructure, extraction area, and any associated activities

3.1.1 Background description to the already existing mine

3.1.1.1 Locality of existing mine and property description

The existing mine (RAM) is located on Portion 1 and the Remaining Extent of the farm Buffelsfontein 353 KQ, and Portion 3 of the farm Grootfontein 352 KQ. RAM is located on the south-eastern slope of the foothills of the Witfonteinrand Mountain Range and is situated approximately 109km from Rustenburg and 15km south-west of Thabazimbi Town. RAM is linked to the R510 Road via a dirt road which leads to Makoppa. Refer to Figure 3 for a locality of the already existing mine.

3.1.1.2 Description of existing activities

The ore body is being mined by means of open quarry methods. Mining activity is currently taking place at Quarry 9. Quarries 1 to 5 have been mined out and are currently being used for disposal of fine tailings, with future rehabilitation in mind. Area 6 (future quarry 6) will not be opened as a result of extensive faulting and weathering of the mother rock in this area. Quarries 7 and 8 is mined out, and currently being filled with tailings. Quarry 9 is the current active quarry. If blasting is needed the area is drilled to a depth of 10m. This is carried out using a self-propelled pneumatic percussion drill. 115mmØ holes are drilled in softer ore on a 4m x 4m pattern. In hard ore 115mmØ holes are also drilled to a 3.5m x 3.5m pattern. The holes are charged with explosives. The explosive is HEF 100 re-pumpable emulsion. This is used with 12m Nonel EZ Dets, 1 x 150g Pentolite booster per hole, connected by 4m trunk lines. A single 6-D detonator and 1.2 m safety fuse initiate the blast. Topsoil is loaded by back-actors onto trucks that, in turn dump the topsoil at the designated topsoil dump. The remaining overburden is removed along with “contact” ore (weathered ore) to designated waste (overburden) dumps. The overburden is dumped within 1km of each quarry on the opposite of the haul road. The dumps vary in size depending on the depth mined as well as the quality of ore found in the quarry and the topography of the area. Any in-quarry waste or low-grade ore is also removed to these dumps. Dust is suppressed by using potable water at a rate of 2,000l per shift. Ore is extracted by means of back-actors. Benches are typically 5m wide and 10m high. Similar technology Trucks used to haul ore are Bell B40D ADT. Primary waste is removed by 10m³ tipper trucks. The Hitachi 650 excavators are applied for loading and offloading operations. Bell 2208 and Bell 1706 loaders are applied in the operation as loaders.

There are eight overburden dumps on the site. The overburden was dumped within 1km of each quarry on the opposite of the haul road. Dumps vary in size depending on the depth that was mined as well as the quality of ore found in the quarry and the topography of the area. There are 5 WRDs located on site. These WRDs consist of coarse rock that does not contain any andalusite constituents

and was removed during the processing of ore. The WRDs are concentrated in close proximity to the processing plants. One primary WRD is located opposite Quarry 9. Depending on quality, this WRD may be reworked in the future. There are three old tailings dams that are no longer in use. All new tailings are directly backfilled.

Processing of the ore may be divided into three main stages as outlined below:

Crushing and screening

The Run of Mine ore is screened prior to crushing and the majority of material, owing to its friability is passed as undersize which bypasses the crusher. The screen oversize is crushed after which it passes into the washing plant together with the undersize. The de-sliming process upgrades andalusite content in comparison to the ROM concentration of between 4.5 to 30%.

Heavy Medium Separation

Cyclones are used in conjunction with a ferrosilicon medium. Density control is automated in order to keep tight control of the critical density required for andalusite separation.

Drying and magnetic separation

A rotary drier is used to dry the andalusite, which is then screened into various size grades. The different size fractions are then passed over magnetic rollers to remove iron-rich impurities.

Process water from the plants are recycled and stored in three worked out quarries.

Existing buildings include workshops, store rooms and mining buildings. No explosives are stored on the mine. The mine has various internal dirt roads as well as one haul road used to transport material from the open quarries.

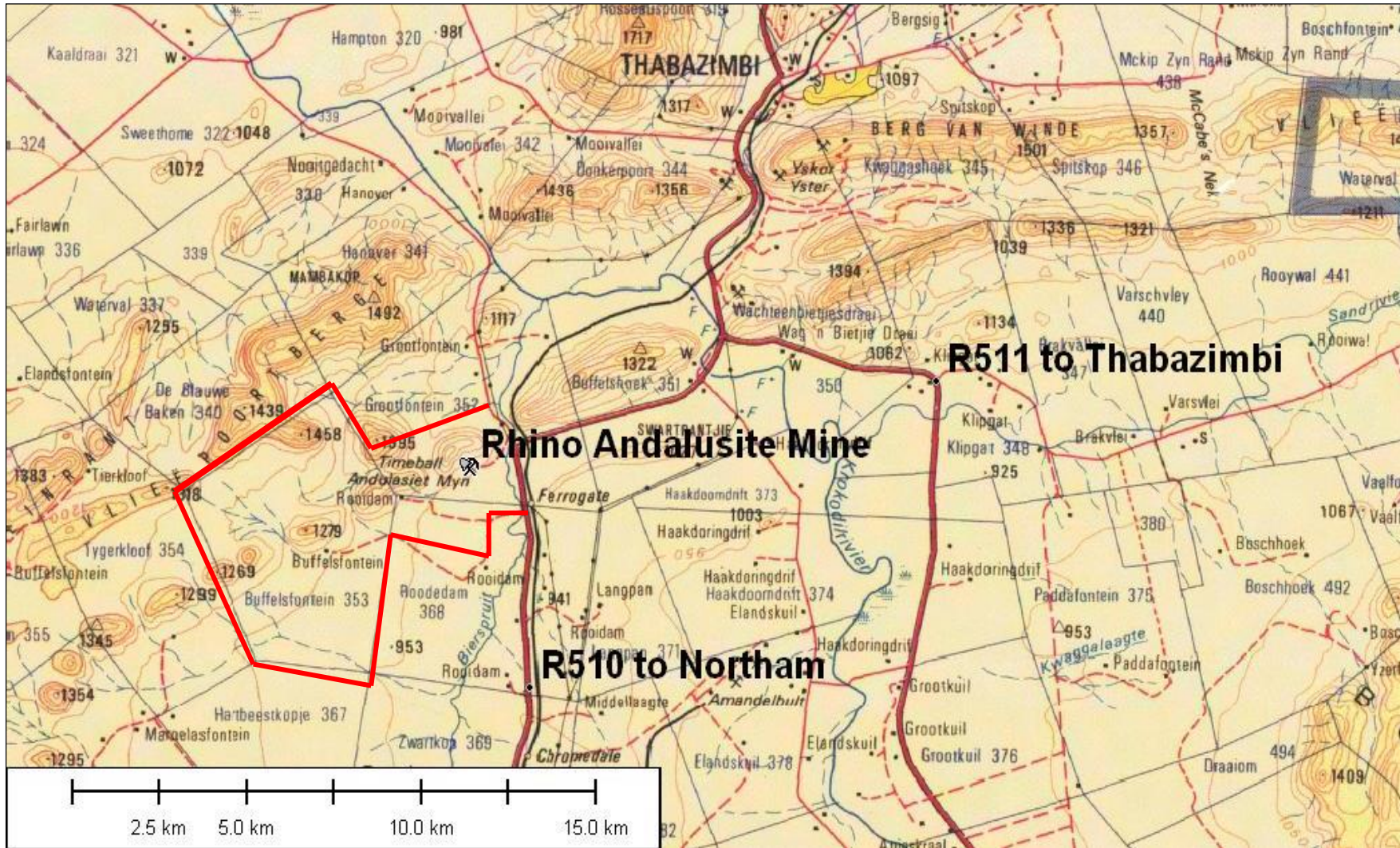


Figure 3: Locality map of already existing RAM (map attached as Addendum 1B) taken from Shangoni Management Services, 2011

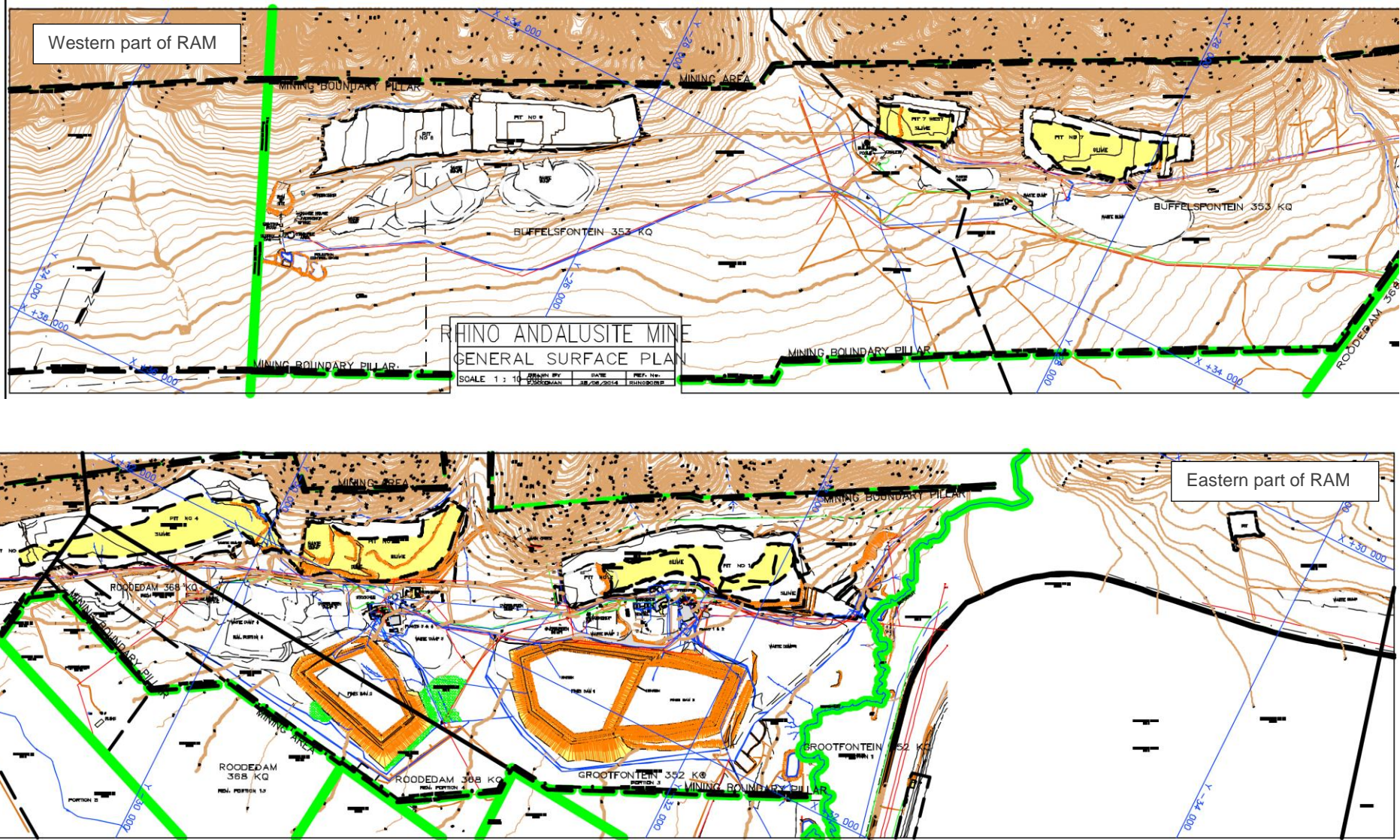


Figure 4: Site layout plan of already existing RAM, this plan has been divided into two parts for easier interpretation (plan attached as Addendum 1D)

3.1.2 Description of the proposed new mine

3.1.2.1 Locality of proposed new mine and property description

The proposed location of Tygerkloof Mining is on portion 5 of the farm Tygerkloof 354 KQ. This site is adjacent, to the west of the already existing RAM. This mine is linked to the R510 Road via the dirt road adjacent to RAM, which leads to Makoppa. Portion 5 of the farm Tygerkloof 354 KQ is approximately 594ha in size. Refer to Figure 4 for a locality map of the proposed new mine. The approximate coordinates of the proposed mine are as follow:

24° 43' 35"S; 27° 13' 58"E

The proposed mine will be located south, of the south-eastern slope of the foothills of the Witfonteinrand Mountain. Refer to section 3 for a more comprehensive description of the proposed site.

3.1.2.2 Description and design of proposed new activities

The proposed new activities include the mining of andalusite in an open quarry over a timeframe of 10 years. The mining method used is open cast rip and doze operation. Topsoil is loaded by back-actor and dumped at the designated topsoil dump. The remaining overburden is removed along with “contact” ore (weathered ore) to designated waste dumps. Any in-quarry waste or low-grade ore is also removed to these dumps. Drilling is carried out using a self-propelled pneumatic percussion drill. 102mm Ø holes are drilled in softer ore on a 4m X 4m pattern. In hard ore 102mm Ø holes are also drilled to a 3.5m X 3.5m pattern. All holes are drilled to a depth of 10m. Dust is suppressed by making use of air cyclones on the drill-rig. Hydraulic back-actors with 4.1m³ and 5m³ buckets load onto dump trucks for hauling and dumping at the process plant. Benches are typically 5m wide and 10m high. The quarry will be approximately 115.9ha. Overburden from the mining operations will be stored adjacent to the quarry on the southern side of the open quarry. The overburden will cover an area of approximately 142.2ha. This overburden will be backfilled into the quarry as part of concurrent rehabilitation, commencing after 2018. The already existing haul road from RAM will be extended at a width of approximately 12m, and a length of 3.5km, adjacent to the quarry, between the open quarry and the overburden. No new buildings or any other associated infrastructure will be constructed. All processing activities will take place on the already existing RAM site.

The initial design for the proposed Tygerkloof Mining is illustrated in Figure 5. In the event of any changes in designs, it will be incorporated into the EIAR, however, this is not envisaged.

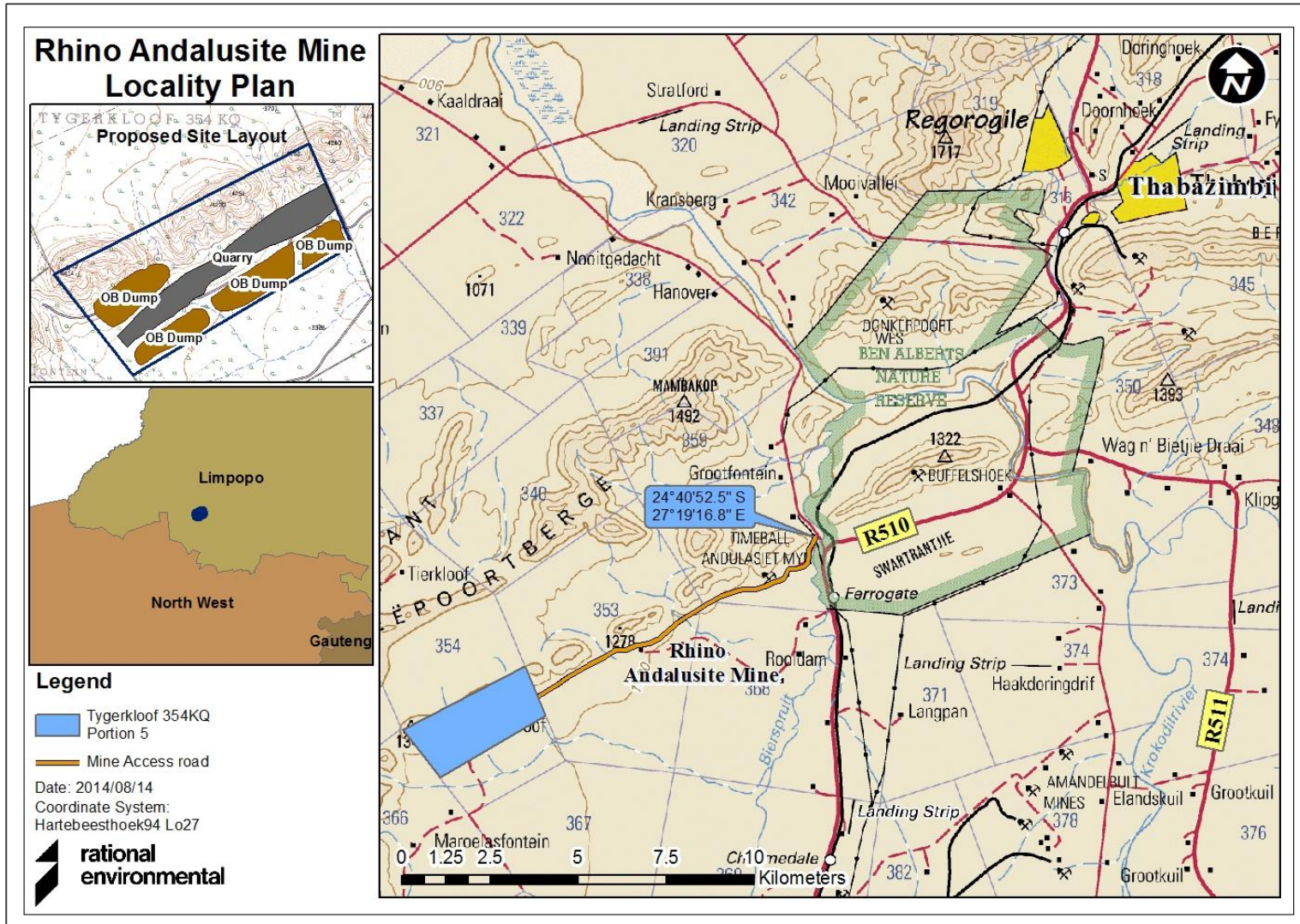


Figure 5: Locality map of Tygerkloof Mining (map attached as Addendum 1A)

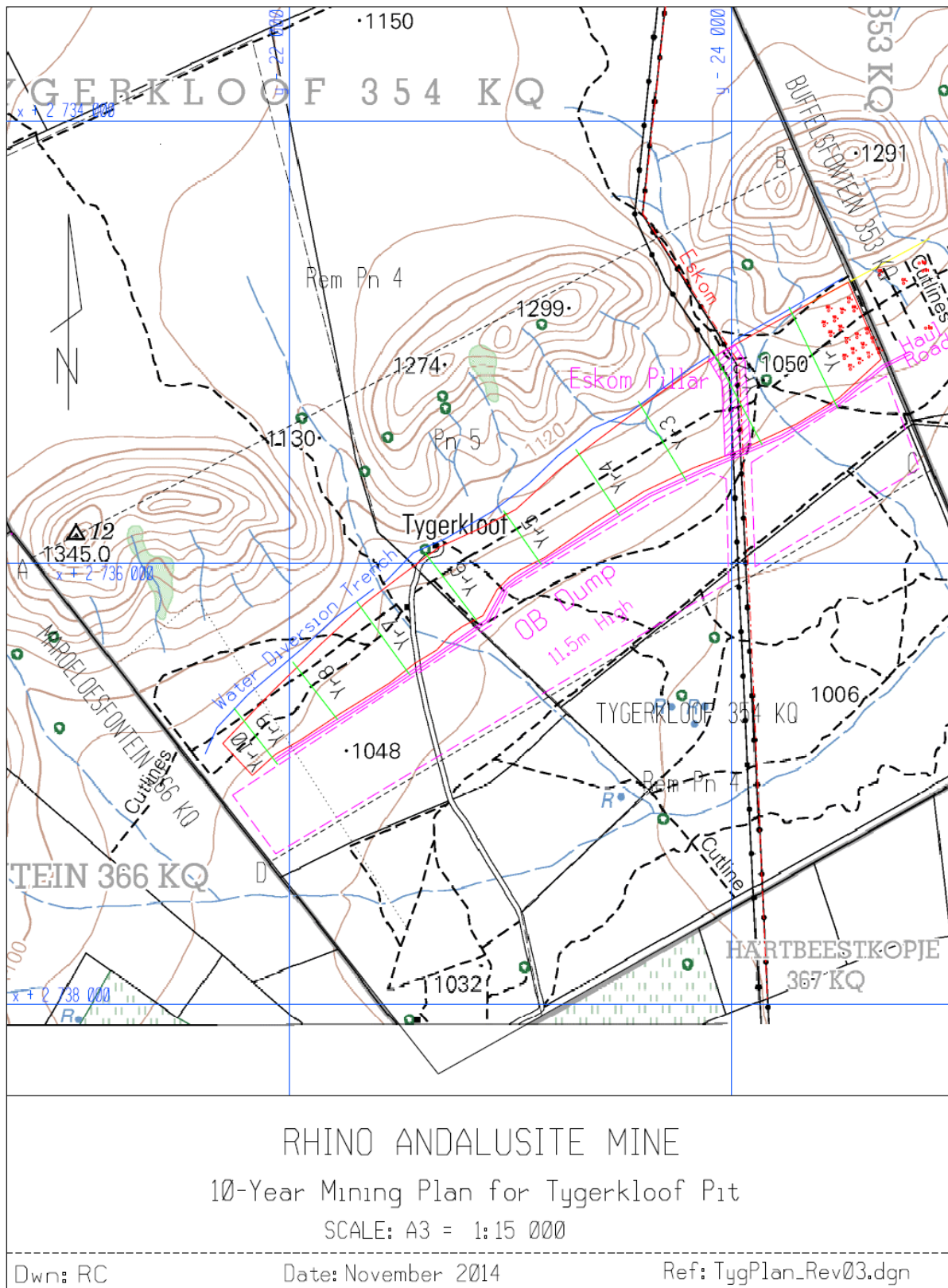


Figure 6: Site layout plan for Tygerkloof Mining (plan attached as Addendum 1C)

3.2 Description of any listed activities (in terms of the NEMA EIA regulations) which will be occurring within the project

Refer below for a table indicating the listed activities in terms of the NEMA which are being applied for, as well as the relevant GN and a description of the activity.

Table 29: Listed activities in terms of the NEMA which are being applied for

Relevant notice	Activity No	Activity	Description
GN R. 544, 18 June 2010	26	Any process or activity identified in terms of section 53(1) of the NEMBA.	Activities 12, 13, 14 & 19 under GN 546 are triggered.
GN R. 544, 18 June 2010	47	The widening of a road by more than 6m, or the lengthening of a road by more than 1km (ii) where no reserve exists, where the existing road is wider than 8m excluding widening or lengthening occurring inside urban areas.	The haul road will be extended approximately 3.5km. This road has a width of 12m.
GN R. 545, 18 June 2010	5	The construction of facilities or infrastructure for any process or activity which requires a permit or license in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent and which is not identified in GN 544 of 2010 or included in the list of waste management activities published in terms of section 19 of the NEMWA in which case that Act will apply.	Overburden from the mining operations will be stored adjacent to the quarry. This will trigger a section 21g WULA under the NWA.
GN R. 546, 18 June 2010	12	The clearance of an area of 300m ² or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation. (b) In Free State, Limpopo and Mpumalanga provinces: (iv) Outside urban areas, in: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans	The quarries will be extended over a period of ten years and will be concurrently backfilled and rehabilitated. The total area of disturbance will be 115.9ha for the quarries. A total area of 142.2ha overburden will be temporarily stored adjacent to the quarries. This will also be concurrently backfilled.
GN R. 546, 18 June 2010	13	The clearance of an area of 1ha or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for: (1) the undertaking of a process or activity included in the list of waste management activities published in terms of section 19 of the	The quarries will be extended over a period of ten years and will be concurrently backfilled and rehabilitated. The total area of disturbance will be 115.9ha for the quarries. A total area of 142.2ha overburden will be temporarily stored adjacent to the quarries. This will

Relevant notice	Activity No	Activity	Description
		<p>NEMWA, in which case the activity is regarded to be excluded from this list. (2) the undertaking of a linear activity falling below the thresholds mentioned in Listing Notice 1 in terms of GN 544 of 2010</p> <p>(a) Critical biodiversity areas and ecological support areas as identified in systematic biodiversity plans adopted by the competent authority.</p>	also be concurrently backfilled.
GN R. 546, 18 June 2010	14	<p>The clearance of an area of 5ha or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for:</p> <p>(1) purposes of agriculture or afforestation inside areas identified in spatial instruments adopted by the competent authority for agriculture or afforestation purposes; (2) the undertaking of a process or activity included in the list of waste management activities published in terms of section 19 of the NEMWA in which case the activity is regarded to be excluded from this list; (3) the undertaking of a linear activity falling below the thresholds in Notice 544 of 2010.</p> <p>(a) In Eastern Cape, Free State, KwaZulu-Natal, Gauteng, Limpopo, Mpumalanga, Northern Cape, Northwest and Western Cape:</p> <p>(i). All areas outside urban areas.</p>	The quarries will be extended over a period of ten years and will be concurrently backfilled and rehabilitated. The total area of disturbance will be 115.9ha for the quarries. A total area of 142.2ha overburden will be temporarily stored adjacent to the quarries. This will also be concurrently backfilled.
GN R. 546, 18 June 2010	19	<p>The widening of a road by more than 4m, or the lengthening of a road by more than 1km.</p> <p>(a) In Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga and Northern Cape provinces:</p> <p>(ii) Outside urban areas, in:</p> <p>(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.</p>	The road will be extended with approximately 3.5km at a width of 12m.

3.3 Specifically confirm that the community and identified interested and affected parties have been consulted and that they agree that the potential impacts identified include those identified by them

The PPP is underway. Any potential impacts identified by the I&APs during the PPP will be included in the final ESR as well as the EMP. All specialist studies must still be completed. These studies will include any potential impact on both the preferred operations as well as the alternative operations. These studies will also focus on the significance rating of each impact.

3.4 A list and description of potential impacts identified on the cultural environment

Refer to the Table 30 below for a list of potential impacts on the cultural- and heritage environment.

Table 30: Potential impacts on the cultural and heritage environment

Activity	Aspect	Impact description
1. The construction and operation of the proposed mine.	a. Destruction of graves and other heritage resources	<ul style="list-style-type: none"> Loss of cultural or heritage resources
<i>A 'Cultural and heritage' specialist study will be conducted as part of the EIA process.</i>		

3.5 A list and description of potential impacts identified on the heritage environment, if applicable

Refer to Section 3.4 above.

3.6 A list and description of potential impacts identified on the socio-economic conditions of any person on the property and on any adjacent or non-adjacent property who may be affected by the proposed mining operation

Refer to the Table 31 below for a list of potential impacts on the socio-economic environment.

Table 31: Potential impacts on the socio-economic environment

Activity	Aspect	Impact description
1. Abstraction of water from the open quarry.	a. Dewatering of water table	<ul style="list-style-type: none"> Loss of groundwater to adjacent farmers.
1. Deposition of overburden adjacent to the open quarry. 2. Mining of open quarry.	a. Seepage of minerals from overburden and open quarry.	<ul style="list-style-type: none"> Pollution of groundwater resource used by adjacent farmers.
1. Machinery used during the construction, operational phase and decommissioning. 3. Transportation activities.	a. Generation of dust, vehicle emissions, and emissions from heap leach. b. Noise generation.	<ul style="list-style-type: none"> Dust and noise nuisance to adjacent properties.

Activity	Aspect	Impact description
1. Mining of open quarry. 2. Extension of haul road. 4. Placement of overburden adjacent to the quarry.	a. Change in topography as a result of the open quarry, haul road and overburden.	<ul style="list-style-type: none"> Impact on tourism and sense of place.
1. General activities on mine. 2. Incorrect or lack of maintenance of firebreaks. 5. Increase in alien vegetation.	a. Fire generation.	<ul style="list-style-type: none"> Loss of life. Damage of property resulting in loss of livelihood.
1. Transportation activities.	a. Limited increase in traffic on roads	<ul style="list-style-type: none"> Potential safety impacts associated with this aspect relate to potential vehicle accidents.
1. The storage and handling of explosives	a. Incorrect storage and handling resulting in explosions.	<ul style="list-style-type: none"> Safety impacts for employees, visitors, community members etc.
1. Relationships between communities and the mine	a. Lack of representation of agricultural union. b. Relationship with traditional leader. c. Lack of interaction with direct neighbouring farmers.	<ul style="list-style-type: none"> Lack of communication between mine and community. Difficulty to communicate issues and concerns to the mine.
1. Construction, operation and decommissioning of these projects.	a. Creating job opportunities.	<ul style="list-style-type: none"> Upliftment of economy in the area.
1. Decommissioning and closure of the mine	a. The loss of employment	<ul style="list-style-type: none"> Decreased expenditure in the local community due to loss of employment. Increased dependence on social grants and support from governmental and non-governmental organisations.
A PPP is underway. Any concerns raised during the PPP will be included in the EIAR.		
Tygerkloof Mining has an SLP. Information from this SLP will be included in the EIAR.		

3.7 A list of potential impacts (positive & negative) on: employment opportunities, community health, community proximity, and links to the social and labour plan

Refer to the Table 32 below for a short summary of potential impacts on the employment opportunities, community health, community proximity, which links to the social and labour plan (SLP).

Table 32: Potential impacts on the employment opportunities, community health, community proximity, which to the SLP.

Activity	Aspect	Impact description
1. Human resource development programme	a. Compliance with skills development legislation	<ul style="list-style-type: none"> Tygerkloof Mining is committed to skills development through a focus on education, training and development.
	b. Adult Basic Education and Training (ABET) Provision Plan	<ul style="list-style-type: none"> Tygerkloof Mining will continue with the provision of ABET training for 16 employees in various levels of ABET for the coming five years.
	c. Bursary Plan	<ul style="list-style-type: none"> Tygerkloof Mining will implement bursary scheme for the employees. Bursary Plan will benefit 4 employees. The two identified fields are accounting and geology.
	d. Internship Plan	<ul style="list-style-type: none"> Tygerkloof Mining will ensure that one internship programme is implemented annually. Therefore, two interns will participate in the Internship training over a five year period.
	e. Learnership Plan	<ul style="list-style-type: none"> The Mine will implement fitting and boiler-making programmes over a five year period. A total of 2 internal learners per annum will participate in the programme, which means over a five year period 2

Activity	Aspect	Impact description
		learners will benefit from the learnership programme.
	f. Artisan Training	<ul style="list-style-type: none"> • Tygerkloof Mining will implement one artisan training programme annually over a five year period.
	g. School Support	<ul style="list-style-type: none"> • Tygerkloof Mining will implement learner development support programme that will benefit 11 learners over a five year period.
	h. Portable Skills Training	<ul style="list-style-type: none"> • Portable Skills Training will be aligned with the employee's current occupation and the commitment will be to concentrate on unskilled and semi-skilled employees for 33 employees over a five year period.
	i. Core Mining Skills Plan	<ul style="list-style-type: none"> • Core Mining Skills Plan is intended to provide employees with relevant trade skills pertaining to their employment positions for 57 employees over a five year period.
	j. Career Progression Plan	<ul style="list-style-type: none"> • A Career Progression Strategy and Plans are crucial to the mine's strategy for staff development. • Roles and responsibilities will ensure an understanding and application of career progression plans. • A total of 18 employees will benefit from the programme of the five year period.
	k. Mentorship Plan	<ul style="list-style-type: none"> • All employees are mentored by their supervisors on an ongoing basis.

Activity	Aspect	Impact description
		<ul style="list-style-type: none"> • A total of 8 employees will participate in the Mentorship Programme over a five year period.
	l. Employment equity	<ul style="list-style-type: none"> • The Mine is committed to achieve and maintain not less than 10% female participation in mining and above 55% Historically Disadvantaged South African (HDSA) participation in management as per the requirements stipulated by the Mining Charter.
	m. HDSA in Management	<ul style="list-style-type: none"> • Tygerkloof Mining will ensure that Mining Charter targets on HDSA representation in the management are met and maintained.
	n. Women in Mining	<ul style="list-style-type: none"> • Tygerkloof Mining will strive to ensure that 10% of women in core mining positions is achieved and maintained for the coming five years.
1. Local economic development programme	a. Measures to address housing and living conditions	<ul style="list-style-type: none"> • The mine does not have hostels accommodation. • Provision has been made through a housing allowance programme that is paid monthly to the employees. • Moreover, there is a policy that allows employees to access their provident fund contribution to build or acquire or renovate their houses. • This shows the commitment Rhino Minerals has in improving housing and living conditions of its employees.
	b. Procurement progression plan	<ul style="list-style-type: none"> • The mine has adopted approach strategies to implement its preferential procurement programme over the next 5 years in terms of:

Activity	Aspect	Impact description
		<ul style="list-style-type: none"> ○ Increase HDSA Local Ownership ○ HDSA suppliers support environment ○ Procurement Progression Plan
<p>1. Process pertaining to management of downscaling and retrenchment</p>	<p>a. Establishment of future forum</p>	<ul style="list-style-type: none"> ● A Future Forum was established in 2009 at the mine, comprising representatives from mine management and the labour unions. ● The purpose of the forum is to promote on-going discussion with employees about the mining operation and its future, and to provide early warning of potential circumstances which may trigger retrenchment, with a view to advising on the restructuring of operations so that the mine is capable of absorbing such contingencies. ● The Future Forum meets 4 times annually and whenever it is necessary.
	<p>b. Mechanisms to save jobs and avoid losses and a decline in employment</p>	<ul style="list-style-type: none"> ● In the event that retrenchments and a decline in employment are threatened, the mine, in consultation with the workforce, will consider mechanisms to save jobs.
	<p>c. Mechanisms to provide alternative solutions and procedures for creating job security where job losses cannot be avoided</p>	<ul style="list-style-type: none"> ● Where job losses are inevitable, in consultation with the Future Forum, job security measures will be taken to ensure post-mine employment by investing in the development of portable skills for employees and ensuring the readiness of employees to undertake self-employment or apply entrepreneurial skills.

Activity	Aspect	Impact description
		<ul style="list-style-type: none"> • The training for these skills will be done in partnership with the relevant stakeholders. If necessary, a skills audit will be undertaken as a first step. • Further procedures may also be included such as: <ul style="list-style-type: none"> ○ Implementing section 189 of the Labour Act, 1995 ○ Communicating possible retrenchments ○ Entrepreneurship training; ○ Training in non-mining skills for vulnerable employees; ○ MQA processes of training and development; ○ Mine courses for upgrading and development; ○ Using the Department of Labour's (DoL) placement and labour bureau services; and ○ Investigating job availability on other mines
	<p>d. Mechanisms to ameliorate the social and economic impact on individuals, regions and economies where retrenchment or closure of the operation is certain</p>	<ul style="list-style-type: none"> • The employee to be retrenched has an option of two alternatives, namely an income alternative or a cash package. • The value of leave for the two alternatives will be calculated at present pensionable earnings. • The employee is entitled to 1 months' notice (or alternatively the employee can be released from duty during his/her final month of service, at management discretion).
	<p>e. Retirement funds</p>	<ul style="list-style-type: none"> • Benefits will be paid out according to the rules of

Activity	Aspect	Impact description
		the various pension, provident or retirement funds.
	f. Unemployment Insurance Fund (UIF)	<ul style="list-style-type: none"> • UIF information will be made available on a monthly basis to the UIF via an electronic database submission.
	g. Service certificates	<ul style="list-style-type: none"> • Service certificates will be issued to each employee.
	h. Alternative work	<ul style="list-style-type: none"> • Employees will be given the opportunity, where possible, to find alternative employment if they are not released from duty in the final month.
	i. Re-employment	<ul style="list-style-type: none"> • Employees with comparable qualifications, who have been retrenched by the employer, will be as far as it is practicable and in compliance with inherent job requirements, be given preference for re-employment.
	j. Medical examination	<ul style="list-style-type: none"> • Employees to be retrenched that have worked in terms of the applicable health legislation in risk positions will, prior to being retrenched, be taken for exit medical examination. The costs for this examination shall be borne by the mine.
	k. Reporting, monitoring and evaluation	<ul style="list-style-type: none"> • A senior manager will be accountable for the on-going monitoring and evaluation of the SLP and for the annual report.

3.8 A list and description of potential impacts identified on the biophysical environment

Refer to the Table 33 below for a list of potential impacts on the biophysical environment.

Table 33: Potential impacts on the biophysical environment

Activity	Aspect	Impact description
Geology		
1. Mining, whether according to mining plan or incorrectly, and therefore not according to mining plan.	a. Removal of ore. Incorrect mining will lead to excessive removal of ore.	<ul style="list-style-type: none"> • Permanent loss of geology.
<i>Tygerkloof Mining has a MWP and mining plan. No additional studies will be conducted. In the event of any information from other specialist studies will be included.</i>		
Topography and visual aspect		
<ol style="list-style-type: none"> 1. Mining of open quarry. 2. Extension of haul road. 3. Placement of overburden adjacent to the quarry. 	a. Change in topography as a result of the open quarry, haul road and overburden.	<ul style="list-style-type: none"> • Visual impact on the environment for a period of approximately 10 years.
<ol style="list-style-type: none"> 1. Backfilling of the open quarry. 2. Rehabilitation of haul road after mining has ceased. 	a. Permanent change in topography due to no backfilling taking place or due to incorrect rehabilitation practices.	<ul style="list-style-type: none"> • Permanent visual impact on the environment.
<i>No additional studies will be conducted. In the event of any information from other specialist studies will be included.</i>		
<i>Specifications of the overburden will be included in the Code of Practice (CoP) for mine residue deposit management</i>		
Soil and land capability		
<ol style="list-style-type: none"> 1. Clearance of topsoil for extension of haul road, open quarry expansion, and placement of overburden adjacent to the open quarry. 2. Driving of vehicles on roads and in veld. 	a. Disturbance to topsoil due to incorrect or inadequate removal of topsoil, and driving activities.	<ul style="list-style-type: none"> • Permanent loss of topsoil resource. • Permanent soil compaction and topsoil loss leading to reduced fertility. Within a mining operation large vehicles move to and from site regularly and as a result the soil becomes compacted. The placement of overburden on any topsoil that has not been removed will lead to permanent soil compaction.
1. Clearance of topsoil for extension of haul road, open quarry expansion, and placement of overburden adjacent to the open quarry.	<ol style="list-style-type: none"> a. Disturbance of soil due to clearance of topsoil and vegetation. b. Incorrect placement of topsoil stockpile. 	<ul style="list-style-type: none"> • Potential soil erosion due to exposed surfaces for a period of approximately 10 years. The construction activities increase the amount of water runoff.

Activity	Aspect	Impact description
2. Placement of topsoil of stockpile.		<ul style="list-style-type: none"> Erosion of stockpiles, and loss in soil fertility over a period of approximately 10 years. Change to the pre-mining land use and land capability on Tygerkloof for a period of approximately 10 years.
1. Shaping and/or sloping of overburden prior to backfilling.	a. Excessive surface water run-off from overburden due to incorrect shaping and/or sloping of overburden.	<ul style="list-style-type: none"> Siltation of areas downslope from overburden could potentially pollute the soil for a period of 10 years until backfilling is complete.
1. Backfilling of the open quarry. 2. Rehabilitation of disturbed area (haul road and overburden area) after mining has ceased.	a. Permanent disturbance of topsoil due to no backfilling taking place or due to incorrect rehabilitation practices. b. Excessive surface water run-off from overburden. c. Increased run-off from rehabilitated areas.	<ul style="list-style-type: none"> Permanent loss of topsoil. Erosion of rehabilitated overburden and other areas.
<i>A 'Soil, Land Use and Land Capability' specialist study will be conducted as part of the EIA process.</i>		
Vegetation and animal life		
1. Clearance of vegetation for extension of haul road, open quarry expansion, and placement of overburden adjacent to the open quarry. 2. Driving of vehicles on roads and in veld.	a. Disturbance of vegetation due to clearance of topsoil and vegetation.	<ul style="list-style-type: none"> Loss of natural vegetation, ecological function and biodiversity, and animal habitats for a period of approximately 10 years.
1. Backfilling of the open quarry. 2. Rehabilitation of disturbed area (haul road and overburden area) after mining has ceased.	a. Permanent loss of vegetation in certain areas due to no backfilling taking place. b. Ineffective revegetation of rehabilitation areas. c. Establishment of alien vegetation.	<ul style="list-style-type: none"> Permanent loss of indigenous vegetation, biodiversity and animal habitats to the area.
<i>An 'Ecological' specialist study will be conducted as part of the EIA process.</i>		
Surface water		
1. Clearance of topsoil for extension of haul road,	a. Soil erosion due to incorrect preventative	<ul style="list-style-type: none"> Siltation of the clean water environment for a period

Activity	Aspect	Impact description
open quarry expansion, and placement of overburden adjacent to the open quarry. Placement of topsoil of stockpile. 2. Removal of ore from open quarry. 3. Placement of overburden adjacent to the open quarry.	measures. b. Excessive surface water run-off from open quarry and overburden. c. Rainfall water accumulating in quarry and removed as process water.	of approximately 10 years. • Decrease in quantity of clean surface water in the catchment area for a period of approximately 10 years.
1. Backfilling of the open quarry. 2. Rehabilitation of disturbed area (haul road and overburden area) after mining has ceased.	a. Soil erosion due to incorrect rehabilitation of areas. b. Excessive surface water run-off from the open quarry and overburden if inadequate backfilling takes place.	• Permanent siltation of the clean water environment. • Permanent decrease in quantity of clean surface water in the catchment area.
<i>A 'Geohydrological' specialist study, an 'Ecological' specialist study and a SWMP will be conducted as part of the EIA process.</i>		
Groundwater		
1. Deposition of overburden adjacent to the open quarry. 2. Mining of open quarry.	a. Seepage of minerals from overburden and open quarry.	• Groundwater pollution.
<i>A 'Geohydrological' specialist study will be conducted as part of the EIA process.</i>		
Air quality and environmental noise		
2. Machinery used during the construction, operational phase and decommissioning. 3. Transportation activities.	b. Generation of dust, vehicle emissions, and emissions from heap leach. c. Noise generation.	• Potential air pollution. • An increase in environmental noise.
<i>An 'Air Quality Impact Assessment' specialist study will be conducted as part of the EIA process.</i>		
<i>A 'Noise Assessment' specialist study will be conducted as part of the EIA process.</i>		

3.9 A description of potential cumulative impacts that the operation may contribute to considering other identified land uses which may have potential environmental linkages to the land concerned

The land use of the surrounding area will be assessed as part of the PPP EIA process. This will give a good indication of potential cumulative impacts in the area. It is envisaged that there will be a cumulative impact from most of the potential impacts listed above. This will be dealt in more detail in the EIAR.

SECTION 4: LAND USE OR DEVELOPMENT ALTERNATIVES, ALTERNATIVE MEANS OF CARRYING OUT THE PROPOSED OPERATION, AND THE CONSEQUENCES OF NOT PROCEEDING WITH THE PROPOSED OPERATION

4.1 A list of and describe any alternative land uses that exist on the property or on adjacent or non-adjacent properties that may be affected by the proposed mining operation

The following definition of “alternatives” is given in the EIA Regulations, 2010: *“alternatives”, in relation to the proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to-*

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

Alternatives will continue to be investigated by discussion with authorities, I&APs, and the client, and the ‘option not to implement’ will be included in the discussions. The EIA (including EMP) document will include the alternatives identified and investigated for the mentioned project as well as the advantages and disadvantages of each.

4.1.1 Alternatives to the property on which or location where it is proposed to undertake the activity

RAM is the landowner of Portion 5 of the farm Tygerkloof 354 KQ, which is situated adjacent to Portion 1 and the Remaining Extent of the farm Buffelsfontein 353 KQ, also owned by RAM. Prospecting was done on this property whereby it was estimated that the underlying geology contains andalusite which can be economically mined. It is therefore not possible to propose an alternative to the property or location for this proposed activity.

4.1.2 Alternatives to the type of activity to be undertaken

The reason for this application is to obtain all the necessary authorisation, including a mining right to mine the andalusite reserve on the proposed site. No other activity alternatives are therefore proposed.

4.1.3 Alternatives to the design or layout of the activity

The proposed open quarries must be designed in such a way that the reserve can be optimally mined. The proposed haul road extension will be an extension of the already existing haul road and will be located in such a way that the ore can be optimally removed from the open quarry and transported to RAM. There will therefore be no location alternative proposed for the open quarry or the haul road.

The preferred location for the overburden is south of the open quarry, with one overburden dump placed north of the open quarry. The location alternative is to place all the overburden on the northern side of the open quarry. Refer to Table 34 below for the advantages and disadvantages of the proposed location versus the alternative location of overburden. This table has been compiled prior to completion of the specialist studie and may change depending on the outcomes of these studies.

Table 34: Advantages and disadvantages of the proposed location versus the alternative location of overburden

Preferred overburden locality	Alternative overburden locality
Advantage or disadvantage	Advantage or disadvantage
A water diversion trench will be constructed on the northern side of the open quarry. This trench will divert clean water from the mountain area, away from the open quarry as well as the overburden on the southern side of this open quarry.	This water diversion trench will have to be constructed further north, into the mountain area.
The haul road will be extended to be located between the open quarry to the north and the overburden to the south. Therefore the haul road will be in close proximity to the open quarry as well as the overburden.	The haul road will not be in close proximity to the overburden, and therefore the road must be extended even further than the proposed 3.5km.
The overburden will be placed on an area that might, depending on the specialist study, have a medium or high agricultural potential.	The overburden will not cover an area that has a potentially medium or high agricultural potential.
The overburden will be placed on an area that, depending on the outcome of the specialist studies, might not have such a high biodiversity than north of the open quarry.	Depending on the outcome of the specialist studies, the overburden will potentially be placed on an area with a higher biodiversity significance.
The overburden will be placed on an area that, depending on the outcome of the specialist study, might have higher heritage resources potential.	Depending on the outcome of the specialist studies, the overburden will potentially be placed on an area with a higher possibility to contain heritage resources.

4.1.4 Alternatives to the technology to be used and operational aspect in the activity

Mining is currently taking place at RAM. The technology and operation method used has been used for a number of years and has been proven to be best practice for this type of mining and area. Therefore, no technology or operational alternatives are proposed.

4.2 A list of and describe any land developments identified by the community or interested and affected parties that are in progress and which may be affected by the proposed mining operation

Any land development will be identified during the I&APs consultation process. Information in this regard will be included in the EMP.

4.3 A list of and describe any proposals made in the consultation process to adjust the operational plans of the mine to accommodate the needs of the community, landowners and interested and affected parties

Any proposals made to adjust the operational plans will be identified during I&APs consultation process, and will be included in the EMP.

4.4 Information in relation to the consequences of not proceeding with proposed operation

The potential impact of the preferred project option on environmental and socio-economic attributes identified during the assessment phase is evaluated against the potential impact of the ‘option of not implementing the activity’ on the same attributes. The summary of this assessment is provided in Table 35 below, whereby -1 is negative, +1 is positive and 0 is ‘no impact’. These impacts are based on the assumption that management measures will be put into place. This table will be updated after completion of the specialist studies.

Table 35: Proposed mining activities versus option of not implementing the activity

Attribute	Development Option	No-go Option
Geology	-1	0
Change in topography	-1	0
Soil fertility	0	0
Loss of topsoil	0	0
Soil erosion	0	0
Change in land capability	-1	0
Loss of vegetation	-1	0
Loss of animal habitat	-1	0
Loss of surface water quantity	-1	0
Change in surface water quality	0	0
Loss in groundwater quantity*	0	0
Change in groundwater quality	-1	0
Dust generation	-1	0
Noise generation	-1	0
Change in visual aspects	-1	0
Loss of cultural and heritage resources**	0	0
Land use	+1	0
Employment	+1	0
Skills development	+1	0
Local and national economy	+1	0
Traffic	-1	0

* According to the mine, the quarry will not extend into the water table, therefore groundwater will not be removed.

** It is currently unknown whether there are any resources on the proposed site.

4.5 Description of the most appropriate procedure to plan and develop the proposed mining operation

4.5.1 Information on its response to the findings of the consultation process and the possible options to adjust the mining project proposal to avoid potential impacts identified in the consultation process

Possible options to adjust the mining project proposal to avoid potential impacts will be identified during I&APs consultation process, and will be included in the EMP.

4.5.2 Describe accordingly the most appropriate procedure to plan and develop the proposed mining operation with due consideration of the issues raised in the consultation process

Refer to section 4.5.1 above.

SECTION 5: DESCRIPTION OF THE PROCESS OF ENGAGEMENT OF IDENTIFIED INTERESTED AND AFFECTED PARTIES, INCLUDING THEIR VIEWS AND CONCERNS

PPP was based on the NEMA, MPRDA and NWA requirements.

According to the preamble of the NEMA:

'It is desirable that the law should establish procedures and institutions to facilitate and promote public participation in environmental governance'

Further on in NEMA, section 23(2)(d) states that:

'The general objective of IEM is to ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment'.

The PPP followed for this application process is based on the requirements as set out in Chapter 6 (regulations 54 – 57) of the EIA Regulations, 2010, in terms of sections 24(5), 24M and 44 of the NEMA; the Publication of Participation Guideline, GN 807 of 2012, in terms of section 27J of the NEMA, as well as the 'Guideline for consultation with communities and interested and affected parties' as required in terms of sections 10(1)(b), 16(4)(b), 22(4)(b), 27(5)(b) and 39 of the MPRDA.

5.1 A description of the information provided to the community, landowners, and interested and affected parties to inform them in sufficient detail of what the mining operation will entail on the land, in order for them to assess what impact the mining will have on them or on the use of their land

An advertisement was published in the local newspaper "Die Kwëvoël" on 12 December 2014. Refer to Addendum 3C for a copy and proof of this advertisement. Four site notices were placed at and around the site on 9 December 2014. One site notice was placed at the security gate of the mine, one site notice at the entrance road to the mine, and two site notices were placed at the Roodedam Farms, adjacent to the site. Refer to Addendum 3D for a copy and proof of the site notices placed.

BIDs were distributed to all adjacent landowners, and stakeholders from 8-15 December 2014 via email or per hand delivery. Refer to Addendum 3E for a copy of the BID, Addendum 3F for proof of BIDs emailed and Addendum 3G for proof of BIDs hand delivered.

A public and stakeholders meeting was held on 9 January 2015, 10h00, at the Leadwood Lodge, adjacent to the existing mine. Refer to Addendum 3H for the meeting presentation and Addendum 3I for the attendance register. Only two I&APs attended the meeting. One I&AP asked for some clarification on the process. No comments or issues were raised during the meeting. An email were send to all I&APs and stakeholders, giving feedback on the meeting held. Refer to Addendum 3J for this feedback email.

5.2 A list of which of the identified communities, landowners, lawful occupiers, and other interested and affected parties were in fact consulted

Refer to Section 1.6 above and Addendum 3 for all evidence that all interested and affected parties including all those listed above, were notified.

5.3 A list of their views in regard to the existing cultural, socio-economic or biophysical environment, as the case may be

DRDLA send a response to our letter requesting any information on land claims. According to their letter, there are no land claims currently on the property.

Andalusite Resources requested to be registered as and I&AP.

No other comments were received up to date. Any comments received will be included in the following documents.

5.4 A list of their views raised on how their existing cultural, socio-economic or biophysical environment potentially will be impacted on by the proposed prospecting or mining operation

Refer to section 5.3 above.

5.5 A list of any other concerns raised by the aforesaid parties

Refer to section 5.3 above.

5.6 The applicable minutes and records of the consultations

Refer to section 5.1 above for the applicable minutes and records of the consultations.

5.7 Information with regard to any objections received

Refer to section 5.3 above.

SECTION 6: DESCRIBE THE NATURE AND EXTENT OF FURTHER INVESTIGATIONS REQUIRED IN THE ENVIRONMENTAL IMPACT ASSESSMENT REPORT, INCLUDING ANY SPECIALIST REPORTS THAT MAY BE REQUIRED

Refer to Table 36 for the plan of study for the mining right application.

Table 36: Plan of study for the environmental impact assessment process

Date	Description
12 September 2014	Acceptance of application form
27 December 2014	Acceptance of mining right application form. The application form has been submitted to DMR.
December 2014	Commencement of first phase PPP.
January 2015	Commencement of specialist studies: <ul style="list-style-type: none"> • Soil, Land Use and Land Capability specialist study; • Ecological specialist study; • Stormwater management plan; • Geohydrological assessment; • Air Quality Impacts assessment;; • Environmental Noise assessment; and • Cultural and Heritage specialist study
February 2015	Draft ESR to I&APs and stakeholders. This report is the draft ESR. Any comments received from the I&APs and stakeholders regarding the draft ESR will be included in the final ESR prior to submission to LEDET.
March 2015	Final ESR to CA (LEDET). This ESR will contain all comments from I&APs and stakeholders.
May 2015	Draft EIAR to I&APs and stakeholders. This EIAR will not be limited to, but include: <ul style="list-style-type: none"> • All information from specialist studies; • Methodology for impact assessment; • Risk assessment, significance rating; • Management measures for all risks identified; and • Rehabilitation plan (in terms of MPRDA). Any comments received from the I&APs and stakeholders regarding the draft EIAR will be included in the final EIAR prior to submission to LEDET.
July 2015	Final EIAR to CA (LEDET). This EIAR will contain all comments from I&APs and stakeholders.

SECTION 7: IDENTIFICATION OF THE REPORT

The report on the results of consultation must, at the end of the report include a certificate of identification as follows;

Herewith I, the person whose name and identity number is stated below, confirm that I am the person authorised to act as representative of the applicant in terms of the resolution submitted with the application, and confirm that the above report comprises the results of consultation as contemplated in Section 16 (4) (b) or 27 (5) (b) of the Act, as the case may be.	
Full Names and Surname	
Identity Number	

-END-

BIBLIOGRAPHY

Department Of Land Affairs, 1997: Rural Development Framework

Shangoni Management Services, 2011: Information in support of application for rectification of existing mine residue disposal

Thabazimbi Local Municipality, 2013: Integrated Development Plan

Waterberg District Municipality, 2013: Integrated Development Plan