



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

ENVIRONMENTAL SCOPING REPORT FOR LISTED ACTIVITIES ASSOCIATED WITH MINING RIGHT

SUBMITTED FOR AN INTEGRATED ENVIRONMENTAL AUTHORISATION LODGED IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 READ WITH REGULATION 19 OF THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS OF 2014 FOR MINING AND RELATED INFRASTRUCTURAL ACTIVITIES ON PORTIONS 10, 11, 12, 13, 15, & REMAINING EXTENT OF KLIPPLAATDRIFT 399 KT, AND PORTION 3 VLAKFONTEIN 520 KT, THABA CHWEU LOCAL MUNICIPALITY, LIMPOPO PROVINCE

NAME OF APPLICANT: IMERYS REFRACTORY MINERALS SOUTH AFRICA (PTY) LTD – KLIPPLAATDRIFT MINE

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POSTAL ADDRESS: P.O. Box 8118, Centurion, 0046

MINING RIGHT NUMBER: LP30/5/1/2/3/2/1 (10006) MR

July 2019



BECS Environmental (Pty) Ltd

In association with BECS Services (Pty) Ltd



IMERYS
Refractory Minerals

IMPORTANT NOTICE

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

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

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

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

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



1 Objective of the scoping process

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

- a) identify the relevant policies and legislation relevant to the activity;
- b) motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
- c) identify and confirm the preferred activity and technology alternative through an impact and risk assessment and ranking process;
- d) identify and confirm the preferred site, through a detailed site selection process, which includes an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic, and cultural aspects of the environment;
- e) identify the key issues to be addressed in the assessment phase;
- f) agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site; and
- g) identify suitable measures to avoid, manage, or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.



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ADDENDUMS

ADDENDUM 1: MAPS AND PLANS

To be appended to the EIA/EMP

ADDENDUM 2: CURRICULUM VITAE

ADDENDUM 3: SPECIALIST STUDIES

To be appended to the EIA/EMP

ADDENDUM 4: PUBLIC PARTICIPATION PROCESS

Addendum 4A: Database and map indicating applied for and adjacent properties

Addendum 4B: Copy and proof of advertisement

Addendum 4C: Copy and proof of the site notice, and map indicating the location of the site notice

Addendum 4D: Copy and proof of letters sent

Addendum 4E: Comments received and responded to

ADDENDUM 5: COMPETENT AUTHORITIES' CORRESPONDENCE

Addendum 5A: First pages of Klipplaatdrift: Mining Right

Addendum 5B: First pages of Klipplaatdrift: Prospecting Right

Addendum 5C: Proof of submission of Section 102 application on SAMRAD

Addendum 5D: Acceptance of Environmental Impact Assessment and Waste License application by the Department of Mineral Resources

Addendum 5E: Correspondence with the Department of Water and Sanitation regarding the Integrated Water Use License

Addendum 5F: Correspondence with the Department of Rural Development and Land Reform

ABBREVIATIONS

AEL	Air emission licence
DWS	Department of Water and Sanitation
DRDLR	Department of Rural Development and Land Reform
EAP	Environmental assessment practitioner
EIAR	Environmental Impact Assessment Report
EMP	Environmental Management Programme
I&APs	Interested and Affected Parties
IWUL	Integrated Water Use License
IWULA	Integrated Water Use Licence Application
MPRDA	Minerals and Petroleum Resources Development Act (Act 28 of 2002 as amended)
MPRDR	Minerals and Petroleum Resources Development Regulations, GN 527 of 2004 (as amended) i.t.o. the Minerals and Petroleum Resources Development Act No 28 of 2002
MWP	Mine works programme



Imerys Refractory Minerals South Africa (Pty) Ltd – Klipplaatdrift Mine: Environmental Scoping Report for an Integrated Environmental Assessment

NEMA	National Environmental Management Act No 107 of 1998 (as amended)
NEMAQA	National Environmental Management: Air Quality Act 39 of 2004 (as amended)
NEMWA	National Environmental Management Waste Act No 59 of 2008 (as amended)
NWA	National Water Act 36 of 1998
WUL	Water use licence



1 Executive summary

Applicant

BECS Environmental has been appointed by Imerys Refractory Minerals South Africa (Pty) Ltd: Klipplaatdrift Mine to apply for an environmental impact assessment (EIA), waste license (WL) (integrated environmental assessment) (IEA) and an Integrated Water Use License (IWUL).

Klipplaatdrift Mine has an existing mining right for the mining of andalusite on Portions 13, 14, 15 and the remaining extent of the farm Klipplaatdrift 399 KT. Imerys Refractory Minerals South Africa (Pty) Ltd has an expired prospecting right for prospecting andalusite on Portions 10, 11, 12, 13, 14, 15 of the farm Klipplaatdrift 399KT and portion 3 of the farm Vlakfontein 520KT, Thaba Chweu Local Municipality, Limpopo. The original prospecting right included Portions 10, 11,12 13, 14, 15 and the remaining extent of the Farm Klipplaatdrift 399 KT. The prospecting right commenced on the 16th November 2006 and was in place for a period of five years. The prospecting right thus expired on the 15th November 2011. On the 27th of January 2004, a prospecting permit was granted for portion 3 of the farm Vlakfontein 520KT which expired on the 26th January 2005. The prospecting right has not been renewed since expiry. The mine decided to apply for amendment of the existing mining right to include portions 10, 11 and 12 Klipplaatdrift 399 KT and 3 Vlakfontein 520 KT. Listed activities will not be located on portion 14 Klipplaatdrift 399 KT and this portion is therefore not included in the IE or the IWULA.

Refer to Table 1 below for a description of the applicant. Portion 10, 11, 12, 13, 15 of Klipplaatdrift 399 KT and portion 3 of Vlakfontein 520KT is currently owned by Imerys Refractory Minerals South Africa (Imerys). The Remainder of Klipplaatdrift is owned by Jacobus Christoffel Steenekamp and a land use and compensation agreement are in place between Imerys and the owner.

Table 1: Description of the applicant

Project applicant	Imerys Refractory Minerals South Africa (Pty) Ltd – Klipplaatdrift Mine
Contact person	Hendrik Jones
Designation	Operational Director
Telephone number	+27 12 643 5940
E-mail address	Hendrik.Jones@imerys.com

Project description

The proposed activities are as follow:

- The mining of a quarry.
- The placement of overburden adjacent to the quarry, backfilling of slimes in the quarry, and then rehabilitation of quarry using overburden.
- The construction and operation of a haul road.
- The operation of a mobile crushing and screening plant.



- The potential operation of a dryer.

Legal requirements

According to Section 24(2) and 24(5) of the National Environmental Management Act No 107 of 1998 (as amended) (NEMA):

'The Minister, or an MEC with the concurrence of the Minister, may identify (a) activities which may not commence without environmental authorisation(EA) from the competent authority; (b) geographical areas based on environmental attributes, and as specified in spatial development tools adopted in the prescribed manner by the Minister or MEC, with the concurrence of the Minister, in which specified activities may not commence without EA from the competent authority.

The Minister, or an MEC with the concurrence of the Minister, may make regulations consistent with subsection (4) laying down the procedure to be followed in applying for, the issuing of and monitoring compliance with EAs.'

According to Section 19(1) of the National Environmental Management Waste Act No 59 of 2008 (as amended) (NEMWA):

The Minister may by notice in the Gazette publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment.

Furthermore, a person who wishes to commence, undertake or conduct a waste management activity listed under Category B, must conduct a scoping and environmental impact reporting process set out in the EIA Regulations made under section 24(5) of the NEMA as part of a waste management licence application contemplated in section 45 read with section 20(b) of NEMWA.

2 Contact person and correspondence address

a) Details of the Environmental Assessment Practitioner

This section includes the following: Details of the environmental assessment practitioner (EAP); expertise of the EAP, which includes the qualifications of the EAP (with evidence) and a summary of the EAP's experience - in carrying out the EIA Procedure; and a declaration that the EAP is independent in a form as may be specified by the competent authority

BECS Environmental was appointed as an independent consultant (EAP) to meet the requirements as set out in regulation 13 of the EIA Regulations. Refer to Table 2 below to a description of the EAP and refer to Addendum 2 for a detailed CV of the EAP, which includes the expertise including qualifications and experience.

Table 2: Description of the EAP

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)
Name of second responsible EAP	Deshree Pillay
Expertise of EAP	B. Sc Environmental Science (UP), B. Sc Honours Geography & Environmental Science (UP)

I, Deshree Pillay (9505080248080), hereby declare that I have no conflict of interest related to the work of this report. Specially, I declare that I have no business, personal, or financial interests in the property and/or mining right being assessed in this report, and that I have no personal or financial connections to the relevant property owners, or mine. I declare that the opinions expressed in this report are my own and a true reflection of my professional expertise and that there are no circumstances that may compromise my objectivity in performing such work.



Deshree Pillay
 BSc Hons– Geography and Environmental Sciences
 5 July 2019

b) Description of the property

Refer to Table 3 below for a description of the property. A locality map of Klipplaatdrift Mine is provided below in Figure 1.

The existing mining right is located on the Portions 13, 14, 15 and the remaining extent of the farm Klipplaatdrift 399 KT, Thaba Chweu Local Municipality, Limpopo. The mining right extension will therefore include Portions 10, 11, 12, 13, 14, 15 of the farm Klipplaatdrift 399KT and portion 3 of the farm Vlakfontein 520KT. There is currently no mining infrastructure on the site except for a small farm dam on portion 14 of the farm Klipplaatdrift. A very small area of topsoil and ore has been removed on the Re Ext of the farm Klipplaatdrift. There are dirt roads from farming activities traversing the site.

There is an existing mine adjacent to the Klipplaatdrift mining right, towards the south-west. This mine (Krugerspost Mine) has been operating for over 35 years and falls within Mpumalanga Province. Klipplaatdrift is the northern extension of the orebody from the Krugerspost Mine.

Table 3: Farm names, 21-Digit Surveyor General codes, and coordinates

Farm Name	Portions 10, 11, 12, 13, 15, RE of Klipplaatdrift 399 KT, and portion 3 Vlakfontein 520 KT	
Application area (Ha)	2,878.8444ha	
Magisterial district	Thaba Chweu Local Municipality	
Distance and direction from nearest town	15km from Mashishing	
21-digit Surveyor General Code for each farm portion	<p><u>RE Klipplaatdrift 399 KT:</u> TOKT00000000039900000 643.1182ha</p> <p><u>Portion 11 of Klipplaatdrift 399 KT:</u> TOKT00000000039900011 260.6421ha</p> <p><u>Portion 13 of Klipplaatdrift 399 KT:</u> TOKT00000000039900013 260.6400ha</p> <p><u>Portion 3 Vlakfontein 520 KT:</u> TOKT00000000052000003 198.8718ha</p>	<p><u>Portion 10 of Klipplaatdrift 399 KT:</u> TOKT00000000039900010 260.6415ha</p> <p><u>Portion 12 of Klipplaatdrift 399 KT:</u> TOKT00000000039900012 260.6415ha</p> <p><u>Portion 15 of Klipplaatdrift 399 KT:</u> TOKT00000000039900015 456.8729ha</p>
Coordinates	<p><u>RE Klipplaatdrift 399 KT:</u> S24.5450, E30.2711 S24.5415, E30.2839 S24.5550, E30.2829 S24.5517, E30.2928</p> <p><u>Portion 10 of Klipplaatdrift 399 KT:</u> S24.5143, E30.2817 S24.5138, E30.2982 S24.5238, E30.2966 S24.5226, E30.2752</p> <p><u>Portion 11 of Klipplaatdrift 399 KT:</u> S24.5059, E30.2856 S24.5124, E30.2949 S24.5283, E30.2924 S24.5159, E30.2837</p>	<p><u>Portion 13 of Klipplaatdrift 399 KT:</u> S24.5231, E30.2753 S24.5243, E30.2966 S24.5411, E30.2813 S24.5411, E30.2749</p> <p><u>Portion 15 of Klipplaatdrift 399 KT:</u> S24.5312, E30.2639 S24.5301, E30.2752 S24.5410, E30.2749 S24.5447, E30.2712</p> <p><u>Portion 3 Vlakfontein 520 KT:</u> S24.5125, E30.2949 S24.5141, E30.3057 S24.5247, E30.2955 S24.5229, E30.2913</p>

	<u>Portion 12 of Klipplaatdrift 399 KT:</u> S24.5152, E30.2754 S24.5229, E30.2753 S24.5242, E30.2959 S24.5290, E30.2924	
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c) Locality map

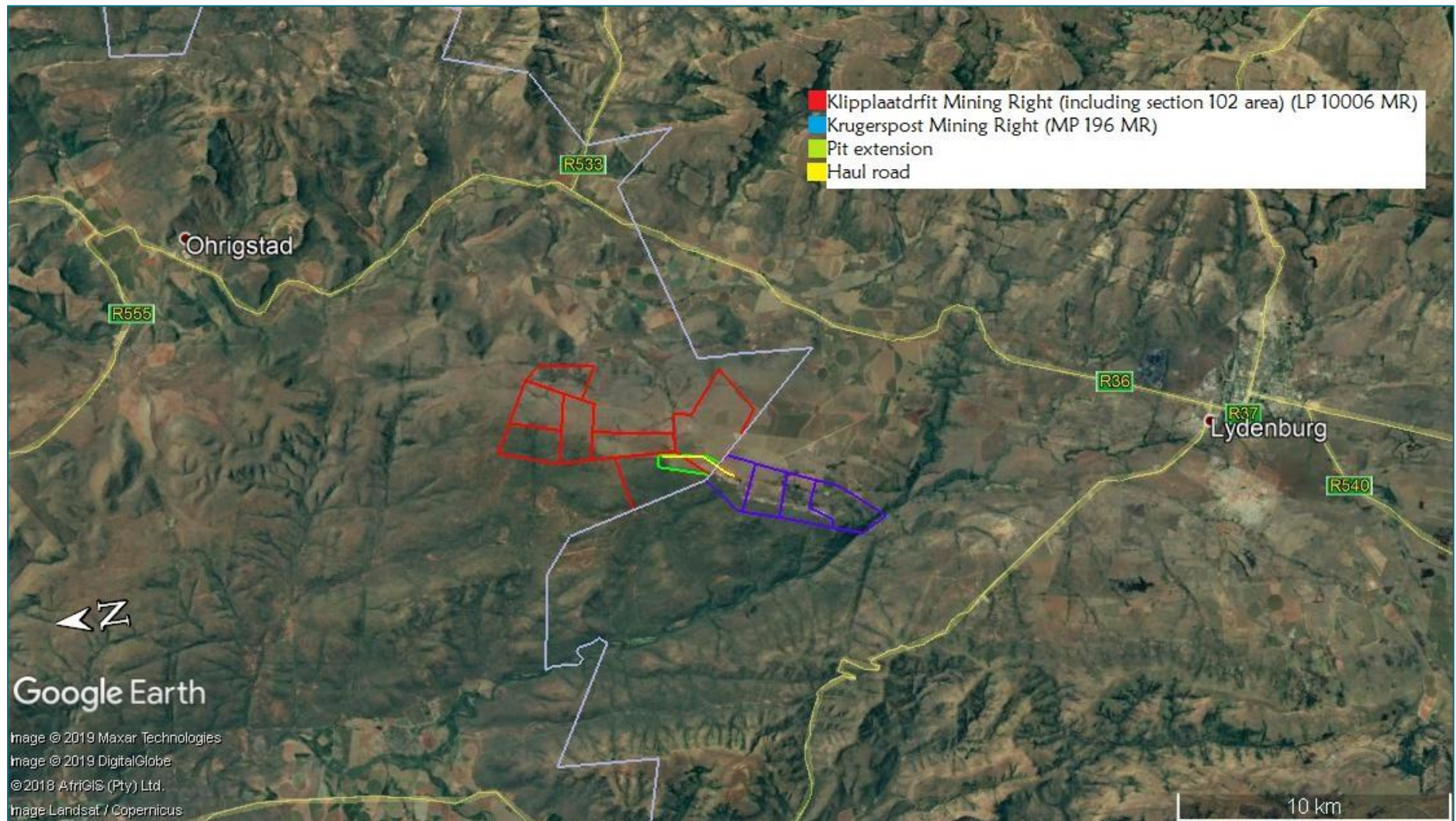


Figure 1: Locality map of Klipplaatdrift Mine

d) Description of the scope of the proposed overall activity

(i) Listed and specified activities

This application is for both EIA and WL applications. In addition to this application, the mine is also applying for an integrated water use licence (IWULA). Refer below to Table 4 for all listed activities. The locality map indicates the current layout as well. This layout plan will be updated once all specialist studies are finalised and will also include any additional issues raised by interested and affected parties (I&APs).

(a) Listed activities applied for in this application

EIA and waste license:

Refer below to Table 4 for a complete list of activities applied for. Please note the IEA does not include Portion 14 of the farm Klipplaatdrift 399KT. Refer to Addendum 5D for proof of submission as well as relevant correspondence.

Table 4: All listed activities

NAME OF ACTIVITY	Aerial extent of the Activity	LISTED ACTIVITY	APPLICABLE LISTING NOTICE	WASTE MANAGEMENT AUTHORISATION
The development of infrastructure or structures with a physical footprint of 100m ² or more; if no development setback exists, within 32m of a watercourse, measured from the edge of a watercourse.	The size of the infrastructure within the wetland area to be confirmed once specialist studies are finalised.	12(ii)(c)	GN 983 (GN 327)	N/A
The development of a road where no reserve exists where the road is wider than 8 metres.	The maximum width of the haul roads will be 8m.	24(ii)	GN 983 (GN 327)	N/A
The development of facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent	The final size of dryer to be confirmed. .	6	GN 984 (GN 325)	N/A

NAME OF ACTIVITY	Aerial extent of the Activity	LISTED ACTIVITY	APPLICABLE LISTING NOTICE	WASTE MANAGEMENT AUTHORISATION
The clearance of an area of 20 hectares or more of indigenous vegetation.	The final size to be calculated once site layout plan has been finalised.	15	GN 984 (GN 325)	N/A
Waste licence: Backfilling quarries with mine residue and placement of overburden. The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a mining right, exploration right or production right in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).	Surveyor to update sizes.			GNR 633 Category B(11)

(b) Additional authorisations and licences

Mining right:

The applicant has an existing mining right that commenced on the 27 July 2016 and is ending on the 26 July 2031, with mining right reference LP 10006 MR. This mining right includes Portions 13, 14, 15 and the remaining extent of the farm Klipplaatdrift 399 KT, Thaba Chweu Local Municipality, Limpopo. Refer to Addendum 5A for the first pages of this mining right.

Prospecting right:

The applicant had a prospecting right which commenced on the 16th November 2006 and subsequently ended on the 15th November 2011, with prospecting right reference LP 3120 PR. This prospecting right included Portions 10, 11, 12, 13, 14, 15 of the farm Klipplaatdrift 399KT and portion 3 of the farm Vlakfontein 520KT Thaba Chweu Local Municipality, Limpopo. Refer to Addendum 5B for the first pages of this prospecting right.

Section 102 mining right amendment:

The applicant is applying for a Section 102 under MPRDA amendment of the mining right to include the additional portions in the mining right. Therefore portions 10, 11 & 12 of the farm Klipplaatdrift 399KT and portion 3 of the farm Vlakfontein 520KT, will then also be included in the mining right.



IWULA:

The mine is currently applying for an Integrated Water Use License (IWUL) with the DWS. The pre-application meeting was held on 1 July 2019 at DWS in Lydenburg.

Air emission licence (AEL):

The mine will be applying for an air emissions license for the dryer, once the section 102, IEA and IWULA are finalised.

(ii) Description of the activities to be undertaken

Please note this section will be updated in more detail once all specialist studies are finalised. To be included then in the EIAR and EMP.

Mining has only recently commenced. An area of 3,214m² has been stripped and mined. Topsoil has been placed on an area of 10,338m² along a dirt road on the boundary of the Re Ext of Klipplaatdrift. Refer to Figure 2 below for a GoogleEarth image of this area.

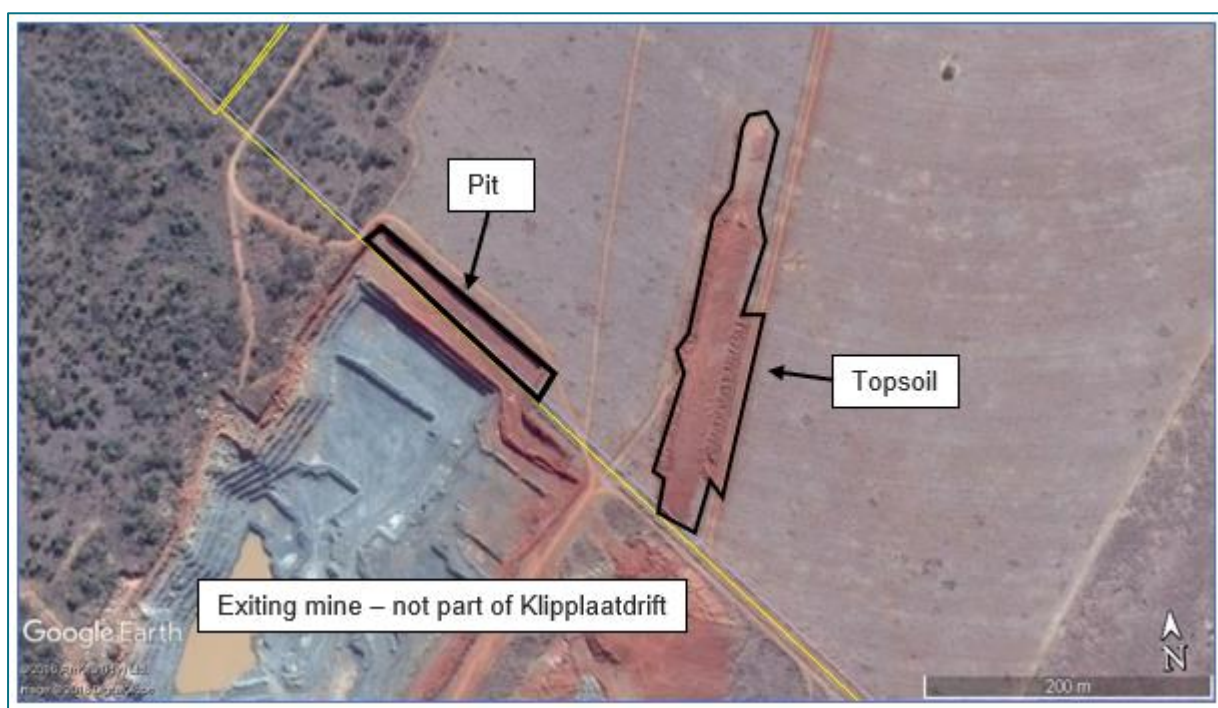


Figure 2: Pit and topsoil stockpile on Klipplaatdrift

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 will be removed along with “contact” ore (weathered ore) to designated waste dumps. Any in-pit waste or low-grade ore will also be removed to these dumps. The 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 is transported to Annesley Mine for further beneficiation.

e) Policy and legislative context

Applicable legislation and guidelines used to compile the report	Description of legislation and guidelines used to compile the report (reference and description)	Reference where applied	How does this development comply with and respond to the policy and legislative context (significance)
Authorisation applications			
MPRDA	<p>According to the MPRDA, Klipplaatdrift Mine must have a mining right as well as an approved EMP. Due to changes from the Minerals Act no 50 of 1991 (MA) to the MPRDA in 2002, all mining rights had to be converted in 2009 from the old MA to the new MPRDA. Any mining right application submitted after 8 December 2014 must be done in terms of NEMA and not MPRDA. This application will include the listed activities pertaining to mining (i.e. Activity 17 of GN 984 of the EIA Regulations). These applications are still submitted to DMR.</p> <p>Any changes in the mining right, EMP, mining works programme (MWP), or EA, must be authorised through a Section 102 (in terms of the MPRDA) amendment.</p>	Addendum 5A	The mine has an approved mining right and a lapsed prospecting right. This mining right was approved under MPRDA. This IEA is submitted in terms of NEMA to ensure all applicable listed activities are authorised.
NEMA and the Environmental Conservation Act 73 of 1989 as amended (ECA)	The first listed activities which required an EA (referred to as a record of decision (RoD) in the past) commenced in 1998. These activities were published in the EIA Regulations of 1998 (GN1183). In 2006, the ECA activities and EIA Regulations were replaced by the first NEMA EIA Regulations. The second set of NEMA EIA activities replaced the first set of NEMA EIA activities in 2010. The ECA	Addendum 5D	The mine is in the process to apply for an IEA for the development of infrastructure or structures with a physical footprint of 100m ² or more; if no development setback exists, within 32m of a watercourse, measured from the edge of a watercourse, the development of a road where no reserve exists where the road is wider than 8 metres, the development of

Applicable legislation and guidelines used to compile the report	Description of legislation and guidelines used to compile the report (reference and description)	Reference where applied	How does this development comply with and respond to the policy and legislative context (significance)
	<p>activities, as well as the first and second NEMA EIA activities, excluded the application for an EIA when applying for a mining right; however, there are various other activities that could potentially trigger an EIA. The third set of NEMA EIA activities commenced on 8 December 2014. According to these listings, an applicant must apply for both a mining right as well as an EA for any new mine, and a prospecting right as well as an EA for any new prospecting activities.</p>		<p>facilities or infrastructure for any process or activity which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent and the clearance of an area of 20 hectares or more of indigenous vegetation.</p> <p>This EIA application includes a listed activity under NEMA.</p> <p>No EA for the application of a mining right is necessary because it is an existing mining right.</p>
NWA	<p>Section 21 of the NWA sets out the water uses for which an IWUL is required. These water uses commenced on 1 October 1998, and include permissible water uses (water uses for which no licensing or registration is necessary), general authorisations (GA) (water uses for which registration only is required), and water use licenses (water used for which both registration and licensing is required). An existing lawful water use is any water use that commenced 2 years or more prior to the NWA and authorised under the old Act. These water uses are deemed lawful. In 1999, the GN 704</p>	Addendum 5E	<p>The mine is currently in the process of applying for an IWULA. The pre-application meeting was held on 1 July 2019 at DWS in Lydenburg.</p> <p>During the meeting the relevant water uses were discussed which will include Section 21c, g, l, j and potentially a of NWA.</p>

Applicable legislation and guidelines used to compile the report	Description of legislation and guidelines used to compile the report (reference and description)	Reference where applied	How does this development comply with and respond to the policy and legislative context (significance)
	Regulations i.t.o. NWA was published. These Regulations pertained to all mining rights, and exemptions of water uses if necessary.		
NEMAQA	A list of activities which need an AEL was published in 2010 (GN 248 of 2010 i.t.o. the NEMAQA. This list was updated in 2013 (GN 893 of 2013 i.t.o. NEMAQA). These lists further included compliance timeframes for plant emission standards, whereby new plant had to comply to new plants emission standards on 1 March 2010; existing plants had to comply with existing plant standards on 1 March 2015, and existing plants have to comply with new plants standards on 1 March 2020.	Part(h)(v)	<p>The mine will ensure that an air emissions license is obtained for the construction and operation of the dryer. The mine will further ensure that all the new plant emission standards are adhered to. This application will only be done once the section 102 is finalised and the applicant has received the EA and IWUL.</p> <p>All impacts and management measures from are included in this ESR and to be included in the EIA/EMP.</p>
NEMWA	Waste management permits for certain waste activities were required from 1989 i.t.o. the ECA. These permits were repealed by the publishing of the first listed waste management activities licensing in 2009 (GN 718 of 2009 i.t.o. NEMWA). These listings were replaced by new listings in 2013 (GN 921 of 2013 i.t.o. NEMWA). If a site has a permit under ECA, this is still applicable until the National Department of Environmental Affairs (NDEA) requests an update under the new legislation (NEMWA).	Addendum 5D	<p>The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a mining right, exploration right or production right in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002): a waste license is required in terms of this regulation for the backfilling of quarries with mine residue and placement of overburden.</p>

Applicable legislation and guidelines used to compile the report	Description of legislation and guidelines used to compile the report (reference and description)	Reference where applied	How does this development comply with and respond to the policy and legislative context (significance)
National Heritage Resources Act no 25 of 1999 (NHRA)	All required permits as per the Act.	Part(h)(v)	A Heritage Impact Assessment (HIA) was done as part of the original mining right application. This report will be attached to the EIAR/EMP. All impacts and management measures from the HIA are included in this ESR and to be included in the EIA/EMP.
Section 15(1) of the National Forest Act No 84 of 1998 (NFA)	No person may cut, disturb, damage or destroy any protected tree; or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, or any forest product derived from a protected tree, except under a licence granted by the Minister.	Part(h)(v)	The mine is currently applying for an EIA for the clearance of an area of 20 hectares or more of indigenous vegetation. It is unclear at this stage the species that will be removed. However, the mine will not cut, disturb, damage or destroy any protected tree; or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree without prior approval and licensing. The Fauna and Flora study will indicate whether such permits are necessary.

f) Need and desirability of the proposed activities

As per the Guideline on Needs and Desirability in terms of the EIA Regulations (published 20 October 2014), the following table has been compiled:

Table 5: Need and Desirability of the proposed project

Guideline requirement	Comments on requirement
1. How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?	<p>An aquatic ecosystem delineation, fauna and flora is currently being compiled for the region which investigates the impact on the ecological integrity of the area and puts forward management measures. Critical Biodiversity Areas ("CBAs") and Ecological Support Areas ("ESAs") are also being identified in the flora and fauna assessment.</p> <p>A risk assessment methodology will be used to assess the ecological integrity and the impact the development has on the region. Further, specialist studies are undertaken in consideration to all environmental components and will be compiled as such.</p> <p>Ecological drivers will be identified in the aquatic ecosystem delineation, fauna and flora report and conservation targets will be established to ensure that the development does not cause significant alteration to the surrounding environment.</p> <p><i>Ehlanzeni Final IDP and budget review (Ehlanzeni District Municipality, 2018-2019)</i></p> <p>Ehlanzeni already has large conservation areas, which dominate the land use pattern in the east and which include the Kruger National Park, provincial, community and private game reserves. Spatial developmental priorities are aimed at achieving environmental conservation targets.</p> <p><i>Mpumalanga Spatial Development Framework (Data World Pty Ltd, 2019).</i></p> <p>One of the strategic focus areas in terms of the spatial developmental strategy of Mpumalanga is Thaba Chweu, Ehlanzeni. One of the main concerns addressed in this document is the need for growth in agriculture and related activities, mining and mineral beneficiation, manufacturing and trade.</p>
1.1 How were the following ecological integrity considerations taken into account?	
1.1.1 Threatened Ecosystems,	
1.1.2 Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure,	
1.1.3 Critical Biodiversity Areas ("CBAs") and Ecological Support Areas ("ESAs"),	
1.1.4 Conservation targets,	
1.1.5 Ecological drivers of the ecosystem,	
1.1.6 Environmental Management Framework,	
1.1.7 Spatial Development Framework, and	
1.1.8 Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.).	

Guideline requirement	Comments on requirement
	<p>Another strategic investment is bridging the water and sanitation backlog gaps to improve the quality of life. The water backlog is identified in all the districts of Mpumalanga. However, it is required to focus on Ehlanzeni district to mitigate the necessary water backlog. The municipality aims to provide safe and reliable services in all districts. With priority areas being in the Ehlanzeni district, in municipalities such as Thaba Chweu.</p> <p>Further objectives include the implementation of the Mpumalanga Biodiversity Sector Plans and Environmental Management Frameworks and the evaluation of all land use applications in terms of the District/Local Environmental Management Frameworks.</p>
<p>1.2 How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>	<p>Refer to impact assessment for the impact of the development on the biological diversity and mitigation measures thereof.</p>
<p>1.3 How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>	
<p>1.4 What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?</p>	<p>As part of the mining process, the generation of waste is inevitable. The anticipated width of the pit will be 250 to 300 m and the depth will be up to a maximum of 40m if possible. The planned location for the topsoil and overburden discard dumps will be on the foot wall to the south of the planned quarry.</p> <p>As per the IWULA pre-application meeting that took place on the 1st of July, the following was established: (a) the mine residue is not from a Category A mine;</p>

Guideline requirement	Comments on requirement
	<p>(b) the disposal is in accordance with Government Notice No. 704 of 4 June 1999 as amended from time to time; [Regulation 4c of GN 704: No person in control of a mine or activity may place or dispose of any residue or substance which causes or is likely to cause pollution of a water resource, in the workings of any underground or opencast mine excavation, prospecting diggings, pit or any other excavation].</p> <ul style="list-style-type: none"> • A Waste characterisation was done, and it was found that it is a Rock type III – not acid forming. <p>(c) The disposal will be done in accordance with SANS 10286: 1998, as amended from time to time. Therefore, various specialist studies are underway to conform to the conditions stipulated in the legislative requirements.</p>
<p>1.5 How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>	<p><i>Klipplaatdrift Mine EMP (Shangoni Management Services (Pty) Ltd, 2012):</i></p> <p>The heritage report undertaken previously has reference: “the 2003 Google Earth image shows that the area was used for agriculture and therefore totally disturbed. From 2010 Google Earth images to the east and west of this disturbed area it is clear though that a continuous archaeological Later Iron Age site existed here.”</p> <p>Mr Donald Lithole from the Limpopo Heritage Resources Agency and the South African Heritage Resources Agency have been informed of the project and no objections have yet been made. If any further resources are found, mining will be halted, and the respective authorities contacted.</p>
<p>1.6 How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?</p>	<p>The area is underlain by greenish grey/dark grey laminated graphitic shale (hornfels) and fine-grained greenish dark grey biotite quartz – feldspar (hard) hornfels representing the Lydenburg Member of the Silverton Formation (Pretoria Group). This sequence is underlain by fine-grained dense dark grey to black quartzitic shale (hornfels) and fine-grained tuff and basic lava with coarse micaceous sandstone lenses locally, together representing the Machadodorp and Boven Members of the Silverton Formation.</p>

Guideline requirement	Comments on requirement
<p>1.7 How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts?</p>	<p>Drilling performed on Portion 13, 14 ,and 15 of Klipplaatdrift 399 KT and RE Klipplaatdrift 399 KT revealed that the ore body extends in a north eastern direction. The extension of the ore body does not appear to be adversely effected by dyke intrusion and it is highly likely that the extension, of the currently mined ore body, will maintain a similar grade along strike with localised dykes/intrusions affecting the quality on a small scale.</p> <p>The current mine operation at Krugerspost Andalusite Mine have been operating for over 35 years.</p>
<p>1.7.1 Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)? (note: sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life)</p>	<p>Klipplaatdrift is the northern extension of the orebody. Therefore, there is no anticipated increased dependency on resources as the proposed activity is in an already existing mining area. The proposed location, type and scale of development thus promotes a reduced dependency on resources.</p>
<p>1.7.2 Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources this the proposed development alternative?)</p>	
<p>1.7.3 Do the proposed location, type and scale of development promote a reduced dependency on resources?</p>	
<p>1.8 How were a risk-averse and cautious approach applied in terms of ecological impacts?</p>	<p>Specialist studies were undertaken and included into this process. Once the specialist studies are complete, the limits of current knowledge, gaps, uncertainties and assumptions will be included and submitted as part of the final report.</p>
<p>1.8.1 What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?</p>	
<p>1.8.2 What is the level of risk associated with the limits of current knowledge?</p>	<p>It is unclear what the level of risk will be on the surrounding environment as specialist studies are still being drafted.</p>
<p>1.8.3 Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?</p>	<p>A risk assessment was compiled for the mine in line with the annual rehabilitation plan. All risks identified will be dealt with the suggested mitigation measures</p>

Guideline requirement	Comments on requirement
	<p>as well as suggestions from the various specialist studies.</p> <p>A risk-averse cautious approach will be followed.</p>
1.9 How will the ecological impacts resulting from this development impact on people's environmental right in terms following	Refer to impact assessment for a comprehensive analysis of all potential impacts.
1.9.1 Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?	Impact identification and prediction includes a stepwise procedure to identify the direct, indirect and cumulative impacts (relating to both positive and negative impacts) for which a proposed activity and its alternatives will have on the environment as well as the community.
1.9.2 Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?	This is undertaken by determining the geographical, physical, biological, social, economic, heritage and cultural sensitivity aspects of sites and locations as well as the risk of impact of the proposed activity.
1.10 Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?	Refer to part A(h)(iv) for a complete description of these environmental attributes. Sources of data to be used for gathering data on the environmental attributes as well as the impacts include; monitoring / sampling data collected and stored, assumptions and actual measurements, published data available from the departments or other stakeholders in the area as well as specialist studies.
1.11 Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?	Likely impacts are described qualitatively and then studied separately in detail. This provides consistent and systematic basis for the comparison and application of judgements.
1.12 Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?	There is no alternative to the opening of a quarry, placement of overburden, construction of haul roads, construction of a crushing a screening plant and a dryer or the backfilling of mine residue. The final decommissioning and rehabilitation will be discussed with the community. Furthermore, all activities will be planned with the aid of a specialist.
1.13 Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation	Refer to the cumulative impact assessment.

Guideline requirement	Comments on requirement
to its location and existing and other planned developments in the area?	
2.1 What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?	Refer to Section 2(h)(iv)(15) for the socio-economic context of the area. Refer to 1.1.8 above for the spatial priorities addressed in the Ehlanzeni district, Thaba Chweu.
2.1.1 The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area,	
2.1.2 Spatial priorities and desired spatial patterns (e.g. need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.),	
2.1.3 Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.), and	
2.1.4 Municipal Economic Development Strategy ("LED Strategy").	
2.2 Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?	The mine ensures that employment opportunities will be made available. The mine is employing 45 people of which 3 are white males, 30 are black males and 12 are black females to ensure just and equitable transformation.
2.2.1 Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?	
2.3 How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?	Refer to impact assessment and Social and Labour Plan for further details.
2.4 Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and longterm? Will the impact be socially and economically sustainable in the short- and long-term?	
2.5 (Not applicable)	
2.6 How were a risk-averse and cautious approach applied in terms of socio-economic impacts?	
2.6.1 What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?	
2.6.2 What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability	

Guideline requirement	Comments on requirement
and sustainability) associated with the limits of current knowledge?	
2.6.3 Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	
2.7 How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following:	
2.7.1 Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?	
2.7.2 Positive impacts. What measures were taken to enhance positive impacts?	
2.8 Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socioeconomic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?	<p>Refer to impact assessment.</p> <p>There is no alternative to the opening of a quarry, placement of overburden, construction of haul roads, construction of a crushing a screening plant and a dryer or the backfilling of mine residue. The final decommissioning and rehabilitation will be discussed with the community. Furthermore, all activities will be planned with the aid of a specialist.</p>
2.9 What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?	<p>Refer to the impact assessment in Part(2)(h)(v) which includes the environmental objective to be achieved, the phase applicable to management measure, management tools, management timeframe and schedule, monitoring programmes, responsibilities for implementation and long-term maintenance, financial provision for long-term maintenance and/or environmental costs and the mitigation hierarchy.</p>
2.10 What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)? Considering the need for social equity and justice, do the alternatives identified, allow the "best practicable environmental option" to be selected, or is there a need for other alternatives to be considered?	
2.11 What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were	

Guideline requirement	Comments on requirement
taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?	
2.12 What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?	
2.13 What measures were taken to:	<p>The process followed adheres to the National Environmental Management Act 107-1998 - National guideline on minimum information (20180209-GGN-41432-00086) and the 2012, IEM Guideline Series 7, Public participation, GN 807. Below is a summary of the announcement.</p> <p>Formal announcement of the project:</p> <p>The notices as mentioned below include all requirements as per the EIA Regulations.</p> <p>Advertisement:</p> <p>An advertisement was published in the local newspaper "Steelburger" on 5 July 2019. Refer to Addendum 4B for a copy and proof of this advertisement.</p> <p>Site notice:</p> <p>One site notice was placed at the entrance to the road from the R36 towards the mining right area. Refer to Addendum 4C for a copy and proof of this site notice as well as a map indicating location of the site notice.</p> <p>Letters:</p> <p>Letters were sent to all stakeholders as well landowners to the site. Addendum 4D for a copy and proof of these letters sent.</p> <p>Public meeting:</p> <p>A public meeting will be held on 1 August 2019 at 10h00. The venue will be confirmed closer to the date depending on the number of people to attend. It will be either at the already existing mine or in Lydenburg.</p> <p>This ESR is simultaneously sent to DMR, the registered I&APs and stakeholder. Any issues raised will be included in the EIA/EMP before submission to</p>
2.13.1 ensure the participation of all interested and affected parties,	
2.13.2 provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation,	
2.13.3 ensure participation by vulnerable and disadvantaged persons	
2.13.4 promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means	
2.13.5 ensure openness and transparency, and access to information in terms of the process	
2.13.6 ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge, and	
2.13.7 ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein were be promoted	
2.14 Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?	

Guideline requirement	Comments on requirement
	DMR. All registered I&APs are given the opportunity to comment on the ESR. This includes any issues that they have with the proposed activity and that they believe may be of significance in the consideration of the application.
2.15 What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?	All contractors, sub-contractors and workers will attend compulsory environmental awareness training and inductions. This training will highlight the dangers associated with the workplace. Procedures relating to environmental risks will also be put in place and will be regularly updated.
2.16 Describe how the development will impact on job creation in terms of, amongst other aspects:	Additional jobs will be created, and employees will be sourced. Refer to the Social and Labour Plan for further information.
2.16.1 the number of temporary versus permanent jobs that will be created,	
2.16.2 whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area),	
2.16.3 the distance from where labourers will have to travel,	
2.16.4 the location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits), and	
2.16.5 the opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 agricultural jobs, etc.).	
2.17 What measures were taken to ensure:	Refer to section 2(i)(vii)
2.17.1 that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment, and	
2.17.2 that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?	
2.18 What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage?	
2.19 Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?	Refer to impact assessment mitigation measures and further refer to the rehabilitation plan.

Guideline requirement	Comments on requirement
2.20 What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?	The mine has an updated financial provision.
2.21 Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?	There is no alternative to the opening of a quarry, placement of overburden, construction of haul roads, construction of a crushing a screening plant and a dryer or the backfilling of mine residue. The final decommissioning and rehabilitation will be discussed with the community. Furthermore, all activities will be planned with the aid of a specialist.
2.22 Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?	Refer to the cumulative impact assessment.

g) Period for which the environmental authorisation is required

The authorisation will be required for 15 years.

h) Description of the process followed to reach the proposed preferred site

i) Details of the development footprint alternatives considered

Various specialist studies are currently underway as part of the IEA. This ESR and any further documents will be made available to the stakeholders and I&APs for comments. The preferred alternative will be finalised using information from both the specialists as well as the comments received.

ii) Details of the public participation process followed

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 I&APs (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.”*



The process followed adheres to the National Environmental Management Act 107-1998 - National guideline on minimum information (20180209-GGN-41432-00086) and the 2012, IEM Guideline Series 7, Public participation, GN 807.

(a) Identification of interested and affected parties

Refer to Table 6 below for all I&APs and stakeholders identified. All of these I&APs and stakeholders were in fact consulted. Refer to Addendum 4D for a copy and proof of letters sent to all stakeholders and I&APs. I&APs will be registered if they communicate in any form with regards to this process. Refer to Addendum 4A for the complete database as well as a map indicating the location of all adjacent landowners.

Table 6: I&APs and stakeholders identified

Interested and Affected Parties	Comments summary and date	EAPs response to issues as mandated by the applicant and date	Action plan forward to incorporate comments and section in this ESR	Registered I&AP or stakeholder
Affected parties				
Landowner/s or lawful occupier/s of the land and adjacent land				
Ptn 1 & Re Klipplaatdrift 399 KT Ptn 21 Vlakfontein 520 KT Rinus Steenekamp	26 June 2019: Telephonically commented that the wetland specialist must ensure all wetlands are assessed. Requested additional meeting before or after public meeting.	26 June 2019 Confirmed on phone that wetland specialist will assess all wetlands that might be impacted. Confirmed additional meeting will be arranged.	Ensure the additional meeting is arranged and takes place. ESR to be sent once finalised.	Registered
Ptn 2 Klipplaatdrift 399 KT Lodewikus Kotze				
Ptn 5 Klipplaatdrift 399 KT Willem Adriaan Nieman				
Ptn 6 Klipplaatdrift 399 KT				

Interested and Affected Parties	Comments summary and date	EAPs response to issues as mandated by the applicant and date	Action plan forward to incorporate comments and section in this ESR	Registered I&AP or stakeholder
Elizabeth Susanna Stiles (sister of Rinus Steenekamp and correspondence through him)				
Ptn 7, 9, 14 Klipplaatdrift 399 KT Ptn 1 & Re Goedevoorzicht 394 KT: Mabelane Communal Prop Association	Meeting was held on 5 July 2019 at the EAP's office. The properties were discussed.	The Association must meet with Imerys for further discussions.	Only to include further information once these discussions have taken place. ESR to be sent once finalised.	Registered
Ptn 10, 11, 12, 13, 15 Klipplaatdrift 399 KT Ptn 31 Klipfontein 400 KT Ptn 3 Vlakfontein 520 KT Imerys (applicant)				
Ptn 2 Klipfontein 400 KT Axlewood Trading & Inv 104 PTY LTD				
Ptn 13 Klipfontein 400 KT Lieb Nieman				
Ptn 1 & 8 Vlakfontein 520 KT Willem Abraham Smith				
Ptn 9 Vlakfontein 520 KT Andries van Rooyen	29 June 2019: Wetlands form ptn 3 Vlakfontein supply water to lower lying areas such as his property.	4 July 2019 Noted. Your comments are also referred to the specialists to ensure these	Comments were forwarded to the specialist to ensure inclusion in their assessments. ESR to be sent once finalised.	Registered

Interested and Affected Parties	Comments summary and date	EAPs response to issues as mandated by the applicant and date	Action plan forward to incorporate comments and section in this ESR	Registered I&AP or stakeholder
	Underground water is also affected by mining; which is their life support. He must be kept informed of this process.	issues are assessed.		
Municipal councillor – ward 4				
Ms Khulumile Elizabeth Maziya			ESR to be sent once finalised.	Stakeholder
Thaba Chweu Local Municipality				
Ms Puleng Mapheto			ESR to be sent once finalised.	Stakeholder
Ehlanzeni District Municipality				
Mr Thapelo Shabangu			ESR to be sent once finalised.	Stakeholder
Organs of state				
DWS Mpumalanga – Lydenburg/Mashishing Office Mpho Ntshagovhe	1 July 2019 Pre-application meeting for the IWULA took place whereby the IWULA was discussed.	4 July 2019 Minutes of pre-application meeting sent to DWS.	Waiting for next step in IWULA process to proceed. ESR to be sent once finalised.	Stakeholder
Limpopo Department of Economic Development, Environment and Tourism Juliet Mukhari			ESR to be sent once finalised.	Stakeholder
Limpopo Heritage Resources Agency Donald Lithole South African Heritage Resources Agency			ESR and EIAR/EMP to be uploaded onto SAHRIS	Stakeholder

Interested and Affected Parties	Comments summary and date	EAPs response to issues as mandated by the applicant and date	Action plan forward to incorporate comments and section in this ESR	Registered I&AP or stakeholder
Department of Agriculture Forestry and Fisheries Ntsoane			ESR to be sent once finalised.	Stakeholder
Department of Rural Development and Land Reform Ms Makhanana Senwana	30 January 2019 Land claims lodged are being challenged for its validity.		ESR to be sent once finalised.	Stakeholder
Communities and traditional leaders				
Mabelane Communal Prop Association				
Historical disadvantaged communities				
None identified	N/A	N/A	N/A	N/A
Land claimants				
See above regarding land claims	N/A	N/A	N/A	N/A

(b) Formal announcement of the project

The notices as mentioned below include all requirements as per the EIA Regulations.

Advertisement:

An advertisement was published in the local newspaper “Steelburger” on 5 July 2019. Refer to Addendum 4B for a copy and proof of this advertisement.

Site notice:

One site notice was placed at the entrance to the road from the R36 towards the mining right area. Refer to Addendum 4C for a copy and proof of this site notice as well as a map indicating location of the site notice.

Letters:

Letters were sent to all stakeholders as well landowners to the site. Addendum 4D for a copy and proof of these letters sent.



(c) Public meeting

A public meeting will be held on 1 August 2019 at 10h00. The venue will be confirmed closer to the date depending on the number of people to attend. It will be either at the already existing mine or in Lydenburg.

(d) Environmental Scoping Report

This ESR is simultaneously sent to DMR, the registered I&APs and stakeholder. Any issues raised will be included in the EIA/EMP before submission to DMR. All registered I&APs are given the opportunity to comment on the ESR. This includes any issues that they have with the proposed activity and that they believe may be of significance in the consideration of the application. These comments need to be submitted within the specified timeframe. The submission of the comments is received by the EAP. The organs of state have 40 days to comment (failing to do so will be taken as no comment) The DWS has 60 days in which to comment. If there are no comments within this time, then it will be regarded as no comments given to DMR.

(c) Decision making announcement to stakeholders and I&APs

To be provided once received.

iii) Summary of issues raised by interested and affected parties

The DRDLR sent a letter in January to confirm that there is a land claim on Klipplaatdrift and Vlakfontein but that the validity of the claim has been challenged in court. Currently, no legitimate land claims have been registered against the portions. Refer to Addendum 5F for correspondence to and from the DRDLR regarding land claims.

Mr Rinus Steenekamp communicated via telephone that the wetlands must be adequately assessed in the area. Mr Andries van Rooyen also mentioned the assessment of wetlands as these wetlands supply water to the lower areas of which his property is included. Also, the groundwater in the area is their livelihood and impact thereof must be assessed and managed. He wants to be notified of any further progress. The geohydrologist, wetland specialist as well as the soil specialist were notified of these comments and requested to ensure this is assessed as per their comments. Refer to Addendum 4E for all comments received as well as responses.

The Mabelane Communal Property Association had a meeting with the EAP on 5 July 2019. Further information to be included in the EIAR/EMP once discussions with the Association have taken place.

iv) The Environmental attributes associated with the sites – baseline environment

The environmental attributes described below include socioeconomic, social, heritage, cultural, geographical, physical and biological aspects. Refer below for the following:

- a. Type of environment affected by the proposed activity - its current geographical, physical, biological, socio- economic, and cultural character;



- b. Description of the current land uses;
- c. Description of specific environmental features and infrastructure on the site; and
- d. Environmental and current land use map which shows all environmental, and current land use features.

Please note that all environmental components will be updated with the specialist studies' information.

1 Geology

Information for this section was extracted from the Klipplaatdrift Mine EMP (Shangoni Management Services (Pty) Ltd, 2014):

The Rustenburg Layered Suite (Bushveld Complex) covers Gauteng, Limpopo and Mpumalanga Province. The aluminous shales of the Pretoria Group within the thermal metamorphic aureole of the Bushveld Complex were metamorphosed to andalusite hornfels. The Krugerspost andalusite deposit occurs in the Magaliesburg Subgroup of the Pretoria Group, and its extent is largely defined by the subsurface weathering profile of the andalusite host rock.

2 Climate

Information for this section was extracted from the Klipplaatdrift Mine EMP (Shangoni Management Services (Pty) Ltd, 2014):

The climate is typical of the Transvaal Middleveld, with warm to hot summers and cool winters. Most rainfall occurs in the summer months from September to February in the form of thunderstorms. The area has a moderate rainfall. Mean annual rainfall amounts to ± 663 mm per annum. The 1:50year 24-hour storm average is 133mm and the 1:100year 24hour storm average is 154mm. The mean monthly evaporation for Krugerspost Andalusite Mine is 2140 mm. January is generally the warmest month of the year with a mean temperature of 25.4°C and June is generally the coldest month of the year with a mean temperature of 18.3°C.

3 Topography

Information for this section was extracted from the Klipplaatdrift Mine EMP (Shangoni Management Services (Pty) Ltd, 2014):

The region is fairly mountainous with rocky outcrops and ridges in places. The Lydenburg area falls within the Mountain Region catchment of the Olifants River.

4 Soil

The following information was taken from the report titled: "Soil, land capability and land use assessment of the proposed open pit area of the Krugerspost Andalusite Mine north of Lydenburg,



Limpopo Province” dated 26 October 2014 and compiled by Rehab Green Environmental and Rehabilitation Monitoring cc (Rehab green, 2014).

The soil forms identified were Hut and Hul-R. The soil forms can be described as being deep to very deep, reddish brown to red in nature and are well drained. The soils are situated on foot slopes with a steepness of 3-5% and are apedal to weakly structured. The Hu 1 -R soils are however underlain by weathered or hard rock and consist of scattered surface stone and rock covering less than 1% of the surface area, the dominant soil type is the Hut as it occupies approximately 23.49 Ha (88.32% of the total surface area of the proposed open pit).

5 Pre-mining land capability, land use and existing infrastructure

The following information was taken from the report titled: “Soil, land capability and land use assessment of the proposed open pit area of the Krugerspost Andalusite Mine north of Lydenburg, Limpopo Province” dated 26 October 2014 and compiled by Rehab Green Environmental and Rehabilitation Monitoring cc (Rehab green, 2014).

The land use within the proposed new open pit area can be described as being predominantly grazing of livestock and wildlife (20,92 ha). The land use of the remaining area (5,68 ha) is that of former cultivated lands that are currently used for pasture and grazing.

6 Vegetation

Information for this section was extracted from the Klipplaatdrift Mine EMP (Shangoni Management Services (Pty) Ltd, 2014):

The proposed mining area is situated within the Grassland and Savanna Biome of South Africa. Summer rainfall combined with dry winters and frost with marked diurnal temperature variations in the Grassland Biome are unfavourable to tree growth and therefore grasslands comprise mainly of grasses and plants with perennial underground storage organs, for example bulbs and tubers and less trees. However, the site is situated within Mesic Highveld grassland where the surface topography (e.g. rocky hills and protected valleys) creates habitats that are favourable to shrublands and trees (Dimela, 2014). Generally, the higher the surface rock cover, the higher the occurrence of woody vegetation such as trees and shrubs, relative to herbaceous vegetation (Mucina & Rutherford, 2006).

The Grassland Biome consists of various different vegetation types, of which the Lydenburg Thornveld dominates the study area. This vegetation type, in its natural and undisturbed state, comprised open, frost hardy woodland especially on rocky outcrops, while the frost sensitive valleys and plains include less trees and contain mainly Acacia karroo and woody suffrutexes (plants which aerial parts die back to an underground rootstock during winter) (Dimela, 2014).



7 Animal life

The following information was taken from the document titled: "Faunal Assessment Report, SAMREC: Krugerspost Andalusite Mine, Limpopo Province", dated August 2014 and compiled by Classic Environmental Management Services (CEMS, 2014).

The majority of mammals, reptiles and amphibians are nocturnal by nature and birds are highly mobile. The presence of suitable habitats was used to determine the status, and presence, of these species through various field guides and atlases.

8 Surface water

The following information relating to surface water was obtained from the document titled: "Hydrological analysis and determination of floodlines for the Krugerspost Andalusite Mine (Pty) Ltd., located in the Magisterial District of Lydenburg, Mpumalanga Province", dated September 2007, compiled by GCS (Pty) Ltd, SWMP (SWMP, Shangoni 2014) as well as the document titled "SAMREC (Pty) Ltd. — Krugerspost Andalusite Mine: Integrated Water and Waste Management Plan" dated May 2013 and compiled by Shangoni Management Services (Pty) Ltd IWWMP, Shangoni 2013).

The region is situated is fairly mountainous with rocky outcrops and ridges in places. The Lydenburg area falls within the Mountain Region catchment of the Olifants River. The tertiary catchments include the Steelpoort-and Spekboom Rivers. The Spekboom River is located approximately 2 km to the west of Krugerspost which drain in a northerly direction.

The site falls within two quaternary catchment areas, with the largest part in B60F and a small part in B42E. .

Drinking water for Krugerspost Mine is sourced from two boreholes (Borehole No. 1 and Borehole No. 2) on site. The quality thereof and suitability for the use is described as follows:

- The "Office Drinking Water" can be described as neutral, non-saline and moderately hard. Major cations and anions and trace metals recorded in the low or un-detected levels. Total coliforms and Faecal coliforms recorded below detection limits (<1 counts/100 ml) and the risk of microbial infection is therefore negligible. Total viable organisms (heterotrophic plate count) recorded a count of 61 /1 ml but should not pose any risks of infection in the absence of coliforms and *E. coli*. The presence of heterotrophic bacteria is natural and ubiquitous in the natural environment and is mostly included in the testing of treated potable supplies to monitor the treatment / disinfection process. The water is moderately hard (mostly contributed by magnesium Mg) and scaling of hot water appliances and / or soap lathering may be the only risks. The water quality for the Office Drinking Water is well within South African domestic water use guidelines (SANS 241: 2011; DWAF, 1998) and can be classified as an Ideal/Class 0 water type suitable for lifetime use.



Within the mine catchment area, the water users are mainly farmers using the clean water dams for irrigation.

9 Groundwater

The following groundwater information was extracted from the approved EMP of Krugerspost Andalusite Mine, dated October 1999, the IWWMP and the desktop hydrogeological study titled: "SAMREC Krugerspost Andalusite Mine: Desktop Hydrogeological Study" dated May 2013 and compiled by Shangoni Management Services (Pty) Ltd. (Shagoni, 2013)

During the desktop hydrocensus for the Krugerspost Andalusite Mine, conducted by Shangoni (2013), 18 boreholes and 1 spring were located within a 5 km radius of the Krugerspost Andalusite Mine. According to the desktop hydrogeological study (Shagoni, 2013) and data obtained from NGA South Africa, the water levels in the study area varied between 0m and 14.32m below ground level with an average of 5.87 m. The mining depth in the mining pits is deeper than the groundwater level, the fact that little to no seepage of groundwater into the mining pits occur and no active dewatering takes place, is evident of the impervious nature of the rock and the assumption can be made that groundwater flow in the occurring aquifers will be relatively slow.

Water compartments are defined by north-south striking dykes. The area is not a high groundwater recharge area.

The South African Aquifer System Management Classification is presented by five major classes:

- Sole Source Aquifer System.
- Major Aquifer System.
- Minor Aquifer System.
- On-Aquifer System.
- Special Aquifer System.

Krugerspost Mine is directly underlain by rocks of the Lydenburg Member occurring in the Pretoria Group of the Transvaal sequence of rocks. The Lydenburg Member consists predominantly of laminated shales with interbedded carbonate layers and hornfels in places. The hydrogeology can be summarised as follows:

- Laminated shales with interbedded carbonate layers and hornfels in places.
- Large scale abstractions for irrigational use occur to the north of Krugerspost Mine.
- Aquifer yields are typically between 0.5 lfs and 2.0 ifs with relatively good water quality and is classified as a d3 intergranular and fractured aquifer.
- According to the Parsons aquifer classification system, the aquifer can be regarded as a minor aquifer.

Three (3) boreholes, located outside the mining area, are utilized by the Mine for domestic purposes, the cleaning of trucks and for dust suppression. The Krugerspost Andalusite Mine is currently in



possession of a Water Use Licence (WUL), with Licence No. 24009412, for which the abstraction of water from two boreholes (Borehole 1 and borehole 2) for domestic purposes is included. The majority of the boreholes, within a 5 km radius of the Krugerspost Andalusite Mine, are utilised for domestic purposes and livestock watering.

10 Air quality

To be updated with specialist study.

11 Environmental noise

Information for this section was extracted from the Klipplaatdrift Mine EMP (Shangoni Management Services (Pty) Ltd, 2014):

Noise pollution and vibrations caused by existing mining machinery and vehicles. The noise level is only significant in the immediate vicinity of the source, with no impact beyond the boundaries of the site. There are no notable sources of the noise from the surrounding area.

12 Visual aspects

Information for this section was extracted from the Klipplaatdrift Mine EMP (Shangoni Management Services (Pty) Ltd, 2012):

The proposed new mining area is somewhat visible from JC Steenekamp, landowner of the remainder of Klipplaatdrift 399KT. The residence on the remainder of the farm Klipplaatdrift 399 KT is approximately 2.4km away from the proposed new mining right activities. The existing mine pits on the adjacent mine are visible from the R36 from approximately 7km outside of Mashishing for approximately 2km.

13 Cultural and heritage resources

Information for this section was extracted from the Klipplaatdrift Mine EMP (Shangoni Management Services (Pty) Ltd, 2012):

During the first assessment a Google Earth image from 2010 was used. On this image 'stone circles' were identified on the site. Using an image of 2003, these 'stone circles' were not visible. During a site visit, it was confirmed that the fields were cleared for agriculture, with not a single stone wall in site. The reason for the 'stone circles' showing on a 2010 image and not the 2003 image is explained below:

While the walling was originally in place, the walls acted as collectors for biological material such as vegetation, ash and water. This altered the chemical composition of the soils under the walls, with the result that with the removal of the stones that formed the walls some time prior to 2003 by the farmer it created zones of preference for different pioneer grass species. From the stand of pioneer Acacia species on the fields now in 2011 it is clear that the fields were not used for possibly more than a couple



of years so that ploughing could not really influence the change in chemicals that were deposited under the walls.

It is therefore the re-habitation of a pioneer grass in the 'footprints' of the walls that show up in the 2010 Google Earth images that appears to be 'stone walls'

For purposes of the heritage report therefore the 2003 Google Earth image shows that the area was used for agriculture and therefore totally disturbed. From 2010 Google Earth images to the east and west of this disturbed area it is clear though that a continuous archaeological Later Iron Age site existed here.

This was also confirmed on site by the identification of a large collection of rocks in the direct vicinity of the cleared area. Amongst these rocks the investigative team then also identified a lower grinding stone, a bored stone and a hammer stone used for breaking marula pips to extract the kernels. In the premises of JC Steenekamp ±600m from this point there is a collection of one hundred of these bored stones that was recovered while he was clearing fields for agriculture. They now serve as garden furniture.

It is estimated that the mining area will mainly influence the cleared fields, but it will also affect portions of undisturbed Later Iron Age sites.

It was agreed upon by all parties that a second phase study will be undertaken in the area of greatest contact by means of mapping the stone walls and limited excavation. This will be followed by an application for a demolition permit that ought to be obtained in lieu of the abundance of similar sites in the region and their preservation owing to the ruggedness of the terrain.

Owing to the environment of Krugerspost, it has been a preferred place of settlement of people from early times to the historical period. During the investigation of the main site Iron Age sites were also identified outside the immediate impact area that may be influenced by the mining operations.

Similarly, the area adjacent to the impact area is rich in a unique type of rock art, only found in the Lydenburg valley. If any of these are found to be located inside the impact area, one may assume that a demolition permit will not be obtainable from South African Heritage Resources Agency (SAHRA) even if the correct second phase procedures are followed.

14 Sensitive landscapes

Information for this section was extracted from the Klipplaatdrift Mine EMP (Shangoni Management Services (Pty) Ltd, 2014):

To be updated with specialist studies.



15 Regional socio-economic aspects

Information for this section was extracted from the Thaba Chweu Local Municipality Integrated Development Plan (Cllr S Mashigo-Sekgobela and team, 2017-2022):

According to the Census results of Stats SA the population size in 1996 was at 65909, 2001 it stood at 81681 and in 2011 it was 98387 as at 2016 we are sitting at 101895 and it is projected that by 2030 we will be around 113920. According to this statistic there has been an increase in population size from 1996 to 2016. This statistical information becomes important in TCLM planning in order to accurately determine the service demand and focus areas for basic service improvement from all pieces of municipal sector plans and policies. In simple terms this becomes a key directive for planning and budgeting within the municipality.

The population of Thaba Chweu municipality shows a typical age structure of a different age group distribution in the year 2011. There is a high proportion of the age group of between 25-29 to be highest and 0-4 to be the second highest of both female and male. The number decreases as the age goes up. The age group of 80+ has the lowest proportion compared to the rest of the other groups. In terms of gender balance, the females have the highest proportion in almost all the age groups. Despite this population distribution by sex and age, the population of the municipality has concentration of younger age groups.

Race and ethnic group

Blacks/black people are the most dominant in the year 1996, 2001 and 2011 followed by whites/white people. This means that the municipal planning in terms of socioeconomic related up-liftment"s programmes and projects must target groups or speak or respond to the race with the highest percentage.

Amongst all the three groups the one that has hit a peak in the years (1996, 2001 and 2011) is the age group of 15-64 which sat at a percentage 64,49 in 1996, 67,16 in 2001 and 69,91 in 2011. The lowest age group is 65+ in the years (1996, 2001 and 2011) whereas the age group 0-14 years had a percentage ranging from 25,17 to 29,21.

Gender

In terms of gender there has been not much change in the years 1996, 2001 and 2011. The percentage of males and females fairly remained the same, in the year 1996, the number of males went down to 49 percent while the number of females was at 50 percent in the year 2001 at least higher than the males, and in the 2011 there has been a slight change in the number females at least this time males were higher by 1% to the females.



Employment

The general unemployment of TCLM population comprises of classified persons i.e People with disabilities, Women and Youth. It has been observed that a large number of employment opportunities come from the mining sector followed by community services and then agriculture. Trade is also contributing a better percentage in employment. Manufacturing, trade and private household share almost the same percentage in terms employment whereas finance, utilities and transport contribute the least in absorbing labour.



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

1 Geology and the mineral resource

Activities:

A. Mining of andalusite. The quarry will be mined in a typical open cast high wall and benching method.

Aspect and impact description:

(1) The loss of geology. Approximately 10,000t of material will be mined per month.

Method for assessing risks:

Information for this section was extracted from the various specialist studies undertaken in line with the Section 102 integrated environmental authorisation as well as the 2014 approved EMP for Klipplaatdrift Mine. Additional impact assessment and management has been added where necessary.

CONSEQUENCE		
Nature / Intensity / Severity of Impact	Before management	With management
(1) The loss of geology will not impact the environment in such a way that natural, cultural and/or social functions and processes are affected	1	1
Spatial extent of Impact	Before management	With management
(1) The loss of geology occurs only at activity	1	1
Duration of Impact	Before management	With management
(1) The loss of geology will be permanent.	4	4
LIKELIHOOD		
Probability of potential occurrence of the Impact	Before management	With management
(1) The loss of geology will occur regardless of any prevention measures	3	3
Frequency of potential occurrence of the Impact	Before management	With management
(1) Even though the activity is ongoing, this impact itself is once-off.	1	1
SIGNIFICANCE	Before management	With management
The impact will be low before and after management.	10	10



Cumulative impacts							
All other mining activities in the area also lead to a loss of geology.							
Environmental objective							
To ensure the impact on geology is minimised.							
Management measures to be applied	Phase applicable to management measure	Management tools	Management timeframe and schedule	Monitoring programmes	Responsibilities for implementation and long-term maintenance	Financial provision for long-term maintenance and/or environmental costs	Mitigation hierarchy
Mining must take place within the approved mining plan.	Operational	Mining plan	Ongoing as mining advances	Mining plan	Mine surveyor and mine manager	None necessary	Monitoring
Stakeholder expectations and / or comments							
None received.							
Residual and latent risks							
The geology mined by Klipplaatdrift Mine will be lost after closure. No latent impacts are envisaged. However, the backfilling of mine residue into the quarries will ensure effective rehabilitation.							

2 Topography and visual aspects

Activities:

A. Mining of andalusite. The quarry will be mined in a typical open cast high wall and benching method.

Aspect and impact description:

(1) The topography will be changed. The topsoil will be removed, and the excavation will progress to the lower levels.

Method for assessing risks:



Information for this section was extracted from the various specialist studies undertaken in line with the Section 102 integrated environmental authorisation as well as the 2014 approved EMP for Klipplaatdrift Mine. Additional impact assessment and management has been added where necessary.

CONSEQUENCE							
Nature / Intensity / Severity of Impact				Before management	With management		
(1) The visual impact will not impact the environment in such a way that natural, cultural and/or social functions and processes are affected.				1	1		
Spatial extent of Impact				Before management	With management		
(1) The visual impact will take place locally.				3	3		
Duration of Impact				Before management	With management		
(1) The visual impact will be permanent if not rehabilitated.				4	3		
LIKELIHOOD							
Probability of potential occurrence of the Impact				Before management	With management		
(1) There have not yet been any comments raised, but this can still be a possibility.				1	1		
Frequency of potential occurrence of the Impact				Before management	With management		
(1) Even though the activity is ongoing, this visual impact itself is once-off.				1	1		
SIGNIFICANCE				Before management	With management		
(1) The visual impact will be low before and after management.				10	9		
Cumulative impacts							
All activities in the area contribute to the visual impact on the environment.							
Environmental objective							
To reduce the visual impact if community raise issues and to ensure final rehabilitation reduces visual impact.							
Management measures to be applied	Phase applicable to management measure	Management tools	Management timeframe and schedule	Monitoring programmes	Responsibilities for implementation and long-term maintenance	Financial provision for long-term maintenance and/or environmental costs	Mitigation hierarchy



During the quarrying operation, excavations will be carried in such a way that slopes are not made unnecessarily steep.	Operational until closure.	Mining plan.	Correct sloping must be ongoing.	Rehabilitation plan	Mine surveyor and mine manager.	Part of operational costs.	Minimise
The area should be shaped to fit in with the current sloping and contours of the area	Rehabilitation and closure.	Rehabilitation plan.	Only during rehabilitation.	Rehabilitation plan	Mine surveyor and mine manager.	Refer to the financial provision.	Rehabilitation
Stakeholder expectations and / or comments							
None received.							
Residual and latent risks							
The backfilling of quarries with mine residue will lessen this residual impact. No latent impacts are envisaged.							

3 Soils, land capability, surrounding land use and landscape character

Activities:

- A. Removal of all vegetation and topsoil at the quarry footprint in order to mine the underlying geological strata.
- B. All activities which use hazardous substances including driving of vehicles and machinery, diesel storage area and all workshops activities.
- C. The generation of general and hazardous waste on site.

Aspect and impact description:

- (1) Loss of topsoil and land capability.
- (2) Soil erosion due to removal of vegetation.
- (3) Soil pollution from spillages of hazardous chemical substances; as well as the incorrect storage or dumping of general and hazardous waste.

Method for assessing risks:

Information for this section was extracted from the various specialist studies undertaken in line with the Section 102 integrated environmental authorisation as well as the 2014 approved EMP for Klipplaatdrift Mine. Additional impact assessment and management has been added where necessary.

CONSEQUENCE		
Nature / Intensity / Severity of Impact	Before management	With management



(1) Loss of topsoil and land capability altered the environment.	2	1
(2) Soil erosion will lead to low severity.	1	0
(3) Soil pollution of minor spillages will be low; however, the diesel tank could lead to medium-sized severity.	2	0
Spatial extent of Impact	Before management	With management
(1) Loss of topsoil and land capability will be contained on site.	2	2
(2) Soil erosion will be contained on site.	2	2
(3) Soil pollution will be contained on site, and with management to the activity itself.	2	1
Duration of Impact	Before management	With management
(1) Loss of topsoil and land capability will be permanent if not rehabilitated.	4	3
(2) Soil erosion will be permanent if not rehabilitated.	4	3
(3) Soil pollution will be long-term if not removed.	3	1
LIKELIHOOD		
Probability of potential occurrence of the Impact	Before management	With management
(1) Loss of topsoil and land capability will be definite if not rehabilitated.	3	2
(2) Soil erosion is probable.	1	0
(3) Soil pollution is probable.	1	0
Frequency of potential occurrence of the Impact	Before management	With management
(1) Even though the activity is ongoing, the loss of topsoil and land capability itself is once-off.	1	1
(2) Soil erosion could take place regularly.	2	1
(3) Soil pollution could take place regularly.	2	1
SIGNIFICANCE	Before management	With management
(1) Loss of topsoil and land capability will be medium before and low after management.	12	9
(2) Soil erosion will be low before and after management.	10	6
(3) Soil pollution will be low before and after management.	10	3
Cumulative impacts		
All other activities in the area could also lead to loss of topsoil, erosion as well as soil pollution.		
Environmental objective		



<p>To reduce the loss of topsoil and land capability. To prevent soil erosion. To prevent soil pollution.</p>							
Management measures to be applied	Phase applicable to management measure	Management tools	Monitoring programmes	Management timeframe and schedule	Responsibilities for implementation and long-term maintenance	Financial provision for long-term maintenance and/or environmental costs	Mitigation hierarchy
All topsoil that is excavated will be stored for the rehabilitation of the areas of the quarry where mining is completed.	Operational phase	Rehabilitation Plan	Rehabilitation plan	During stripping for mining	Mine manager	This forms part of the financial provision.	Prevent
All topsoil is stored in such a way that no damming or wash away (erosion) is created.	Operational phase	Rehabilitation Plan	Site inspection	During stripping for mining	Mine manager	This forms part of the financial provision.	Prevent
The overburden between the topsoil and the ore will also be stored to facilitate rehabilitation.	Operational phase	Rehabilitation Plan	Rehabilitation plan	During stripping for mining	Mine manager	This forms part of the financial provision.	Prevent
All vehicles and machinery must be maintained to prevent soil pollution.	Operation and decommissioning phase	Maintenance register	Maintenance register	As per schedule of maintenance register	Mine manager	No additional costs. This forms part of the operating costs	Minimise.
All hazardous chemical substances stored on site must be in an adequately bunded area.	Operation and decommissioning phase	Procedure for HCS	Site inspection	Continuous	Mine manager	No additional costs. This forms part of the operating costs	Prevent
All hazardous chemical substances stored on site must be accompanied by a 16-point safety data sheet.	Operation and decommissioning phase	Procedure for HCS	Site inspection	Continuous	Mine manager	No additional costs. This forms part of the operating costs	Prevent



The mine must have adequate spill kits on site in case of a spill taking place.	Operation and decommissioning phase	Procedure for HCS and spills	Site inspection	Continuous	Mine manager	No additional costs. This forms part of the operating costs	Minimise
All general and hazardous waste must be stored separately and in adequate storage areas. These area must be labelled.	Operation and decommissioning phase	Procedure for waste management	Site inspection	Continuous	Mine manager	No additional costs. This forms part of the operating costs	Prevent
All waste stored must be removed within 90 days by a contractor with a correct transport permit.	Operation and decommissioning phase	Procedure for waste management	Site inspection	Continuous	Mine manager	No additional costs. This forms part of the operating costs	Prevent
Waste to be removed to licenced facilities and a safety disposal certificate to be provided to the mine.	Operation and decommissioning phase	Procedure for waste management	Site inspection	Continuous	Mine manager	No additional costs. This forms part of the operating costs	Prevent
No illegal dumping of any waste may take place.	Operation and decommissioning phase	Procedure for waste management	Site inspection	Continuous	Mine manager	No additional costs. This forms part of the operating costs	Prevent
All polluted soil will be removed as hazardous waste.	Operation and decommissioning phase	Procedure for waste management	Site inspection	Continuous	Mine manager	No additional costs. This forms part of the operating costs	Minimise
Stakeholder expectations and / or comments							
None received.							
Residual and latent risks							
No residual risks from soil pollution or erosion. No latent impacts.							

4 Vegetation and animal life

Activities:

- A. Removal of all vegetation and topsoil at the quarry footprint in order to mine the underlying geological strata.



B. All activities by the mine personnel on site.

Aspect and impact description:

- (1) Loss of vegetation and animal habitats.
- (2) Establishment of alien and invader vegetation.
- (3) Loss in animal life.

Method for assessing risks:

Information for this section was extracted from the various specialist studies undertaken in line with the Section 102 integrated environmental authorisation as well as the 2014 approved EMP for Klipplaatdrift Mine. Additional impact assessment and management has been added where necessary.

CONSEQUENCE		
Nature / Intensity / Severity of Impact	Before management	With management
(1) Loss of vegetation and animal habitats will have a medium severity. The environmental functions are altered but not ceased.	2	2
(2) Establishment of alien and invader vegetation will have a medium severity. The environmental functions are altered but not ceased.	2	1
(3) Loss in animal life will have a medium severity. The environmental functions are altered but not ceased.	2	1
Spatial extent of Impact	Before management	With management
(1) Loss of vegetation and animal habitats will be contained to the activity.	1	1
(2) Establishment of alien and invader vegetation will be site specific but can lead to local infestation.	3	1
(3) Loss in animal life will be contained to the activity.	1	1
Duration of Impact	Before management	With management
(1) Loss of vegetation and animal habitats will be permanent if not rehabilitated.	4	3
(2) Establishment of alien and invader vegetation will be permanent if not rehabilitated.	4	2
(3) Loss in animal life will be permanent if not managed.	4	1
LIKELIHOOD		
Probability of potential occurrence of the Impact	Before management	With management
(1) Loss of vegetation and animal habitats will be once-off.	3	2



(2) Establishment of alien and invader vegetation will be regularly.	3	1					
(3) Loss in animal life could be regularly.	2	1					
Frequency of potential occurrence of the Impact	Before management	With management					
(1) Loss of vegetation and animal habitats will be definite if not rehabilitated.	1	1					
(2) Establishment of alien and invader vegetation will be definite if not eradicated	2	1					
(3) Loss in animal life will be highly probable if not managed.	2	0					
SIGNIFICANCE	Before management	With management					
(1) Loss of vegetation and animal habitats will be medium before and low after management.	11	9					
(2) Establishment of alien and invader vegetation will be medium before and low after management.	12	6					
(3) Loss in animal life will be medium before and low after management.	11	4					
Cumulative impacts							
All other activities in the area also lead to loss of natural vegetation and therefore animal habitats. Alien and invader vegetation occur in the area also form other activities. The loss of habitats from other activities also lead to loss of animal life.							
Environmental objective							
To reduce the loss of vegetation and animal habitat.							
To eradicate alien and invader vegetation.							
To prevent loss of animal life.							
Management measures to be applied	Phase applicable to management measure	Management tools	Monitoring programmes	Management timeframe and schedule	Responsibilities for implementation and long-term maintenance	Financial provision for long-term maintenance and/or environmental costs	Mitigation hierarchy
Personnel must be made aware not to remove any vegetation without prior approval from management.	Operation	Awareness documents	Site inspections	Continuous	All personnel	No additional costs	Prevent
All seeded areas will be managed as they are established.	Rehabilitation	Rehabilitation plan	Rehabilitation plan	After seeding	Mine manager	As part of financial provision	Rehabilitate



All alien vegetation will be removed.	Operational until closure	Alien eradication plan	Site inspections	As per eradication plan	Mine manager	As part of financial provision	Prevent
All vehicles will drive within the speed limits of the mine.	Operational until closure	Signage	Site inspections	Continuous	All personnel	No additional costs	Prevent
Personnel must be made aware not to kill any animals on site or to remove any vegetation without prior approval from management.	Operational until closure.	Awareness documents	Site inspections	Continuous	All personnel	No additional costs	Prevent
Stakeholder expectations and / or comments							
None received.							
Residual and latent risks							
If effective rehabilitation takes place, there should not be residual impacts. No latent impacts foreseen.							

5 Surface water

Activities:

- A. Mining of andalusite and operation of infrastructure on the mining area.
- B. All activities which use hazardous substances including driving of vehicles and machinery, diesel storage area and all workshops activities.
- C. The generation of general and hazardous waste on site.

Aspect and impact description:

- (1) Alteration of drainage patterns due to quarry and other infrastructure; which also leads to loss of surface water to the catchment area.
- (2) Pollution of surface water from the mining and other dirty infrastructure areas.
- (3) Potential destruction of the wetland

Method for assessing risks:

Information for this section was extracted from the various specialist studies undertaken in line with the Section 102 integrated environmental authorisation as well as the 2014 approved EMP for Klipplaatdrift Mine. Additional impact assessment and management has been added where necessary.

CONSEQUENCE



Nature / Intensity / Severity of Impact	Before management	With management
(1) Alteration of drainage patterns and loss of surface water could alter environmental functions.	2	1
(2) Pollution of surface water could alter environmental functions.	2	1
(3) Destruction of the wetland area could alter environmental functions.	2	1
Spatial extent of Impact	Before management	With management
(1) Alteration of drainage patterns and loss of surface water will be localised.	3	3
(2) Pollution of surface water will be localised.	3	1
(3) Destruction of the wetland area will be localised, replacing wetland function will be difficult	3	2
Duration of Impact	Before management	With management
(1) Alteration of drainage patterns and loss of surface water will be permanent without rehabilitation.	4	3
(2) Pollution of surface water will be long-term without management.	3	1
(3) Destruction of wetland area can be long-term without management.	3	1
LIKELIHOOD		
Probability of potential occurrence of the Impact	Before management	With management
(1) Alteration of drainage patterns and loss of surface water is definite.	3	2
(2) Pollution of surface water is probable.	2	1
(3) Destruction of wetland area is probable due to mining activities	2	1
Frequency of potential occurrence of the Impact	Before management	With management
(1) Alteration of drainage patterns and loss of surface water is regularly.	2	1
(2) Pollution of surface water will be regularly.	2	1
(3) Destruction of the wetland area will be regular	2	1
SIGNIFICANCE	Before management	With management
(1) Alteration of drainage patterns and loss of surface water will be medium before and low after management.	14	10
(2) Pollution of surface water will be medium before and low after management.	12	5
(3) Destruction of the wetland area will be medium before and low after management	12	6
<u>Cumulative impact</u>		
There are various activities in the area that can also impact on the water resources in the area.		



Environmental objective							
To minimise any alterations in drainage patterns.							
To prevent the contamination and sedimentation of surface water resources.							
To prevent the damage of the wetland area.							
Management measures to be applied	Phase applicable to management measure	Management tools	Monitoring programmes	Management timeframe and schedule	Responsibilities for implementation and long-term maintenance	Financial provision for long-term maintenance and/or environmental costs	Mitigation hierarchy
Safety berms must also act as stormwater berms.	Operational until closure.	SWMP	Site inspections	Continuous	Mine manager.	Included in the costs of the mine.	Minimise
All storm water will be managed by means of a stormwater management plan (SWMP).	Operational until closure.	SWMP	Site inspections	Continuous	Mine manager.	Included in the costs of the mine.	Minimise.
Refer above regarding hazardous substances and waste handling.							
Surface water monitoring depending on inputs from specialist.							
Preserve the wetland environment and rehabilitate as per the wetland assessment.	Operational until closure and rehabilitation.	Wetland assessment.	As per wetland assessment suggestions.	Continuous	Mine manager.	Included in the costs of the mine.	Prevent or minimise.
Stakeholder expectations and / or comments							
Mr Rinus Steenekamp communicated via telephone that the wetlands must be adequately assessed in the area. Mr Andries van Rooyen also mentioned the assessment of wetlands as these wetlands supply water to the lower areas if which his property is included. Also, the groundwater in the area is their livelihood and impact thereof must be assessed and managed. He wants to be notified of any further progress. The geohydrologist, wetland specialist as well as the soil specialist were notified of these comments and requested to ensure this is assessed as per their comments. Refer to Addendum 4E for all comments received as well as responses.							
Residual and latent risks							



The drainage patterns will not be a residual risk if rehabilitation is adequate. Depending on the results of further monitoring, the risk of potential pollution and sedimentation will not be a latent risk. No latent risks.

6 Groundwater

Activities:

- A. Mining of andalusite and operation of infrastructure on the mining area.
- B. Water removal from quarry.

Aspect and impact description:

- (1) Loss of groundwater seeping into the quarry.
- (2) Pollution of groundwater from the mining and other dirty infrastructure areas.

Method for assessing risks:

Information for this section was extracted from the various specialist studies undertaken in line with the Section 102 integrated environmental authorisation as well as the 2014 approved EMP for Klipplaatdrift Mine. Additional impact assessment and management has been added where necessary.

CONSEQUENCE		
Nature / Intensity / Severity of Impact	Before management	With management
(1) Loss of groundwater seeping into the quarry could alter environmental functions.	2	1
(2) Pollution of groundwater could alter environmental functions.	2	1
Spatial extent of Impact	Before management	With management
(1) Loss of groundwater seeping into the quarry will be localised.	3	3
(2) Pollution of groundwater will be localised.	3	1
Duration of Impact	Before management	With management
(1) Loss of groundwater seeping into the quarry will be permanent without rehabilitation.	4	3
(2) Pollution of groundwater will be long-term without management.	3	1
LIKELIHOOD		
Probability of potential occurrence of the Impact	Before management	With management
(1) Loss of groundwater seeping into the quarry water is probable.	2	1



(2) Pollution of groundwater is probable.	2	1					
Frequency of potential occurrence of the Impact	Before management	With management					
(1) Loss of groundwater seeping into the quarry is once-off.	1	1					
(2) Pollution of groundwater could be regularly.	2	1					
SIGNIFICANCE	Before management	With management					
(1) Loss of groundwater seeping into the quarry will be medium before and low after management.	12	9					
(2) Pollution of groundwater will be medium before and low after management.	12	5					
Cumulative impacts							
Groundwater can be polluted from the mining of in the area as well as other activities.							
Environmental objective							
To reduce the loss of groundwater. To reduce any groundwater pollution that may occur.							
Management measures to be applied	Phase applicable to management measure	Management tools	Monitoring programmes	Management timeframe and schedule	Responsibilities for implementation and long-term maintenance	Financial provision for long-term and/or environmental costs	Mitigation hierarchy
Metering water abstractions form quarry.	Operational	IWUL	Water monitoring programme				
Groundwater monitoring as per inputs form specialist.							
Stakeholder expectations and / or comments							
Impact on groundwater which is livelihood in the area.							
Residual and latent risks							
Depending on the results of further monitoring, the risk of potential pollution (excluding acid mine drainage) will be a residual risk. The potential for acid mine drainage becoming a latent impact is not probable.							



7 Air quality

Activity:

A. Various activities on the mine including the construction and operation of a dryer.

Aspect and impact description:

- (1) Air pollution due to dust generation.
- (2) Nuisance impact of dust on the surrounding areas.

Method for assessing risks:

Information for this section was extracted from the various specialist studies undertaken in line with the Section 102 integrated environmental authorisation as well as the 2014 approved EMP for Klipplaatdrift Mine. Additional impact assessment and management has been added where necessary.

CONSEQUENCE		
Nature / Intensity / Severity of Impact	Before management	With management
(1) Air pollution due to dust generation will not affect the environmental functions.	1	0
(2) Nuisance impact of dust on the surrounding areas will not affect the environmental functions.	1	0
Spatial extent of Impact	Before management	With management
(1) Air pollution due to dust generation will be localised.	3	1
(2) Nuisance impact of dust on the surrounding areas will be localised.	3	1
Duration of Impact	Before management	With management
(1) Air pollution due to dust generation will be short term.	1	1
(2) Nuisance impact of dust on the surrounding areas will be short term.	1	1
LIKELIHOOD		
Probability of potential occurrence of the Impact	Before management	With management
(1) Air pollution due to dust generation is highly probable.	2	1
(2) Nuisance impact of dust on the surrounding areas is probable.	1	0
Frequency of potential occurrence of the Impact	Before management	With management
(1) Air pollution due to dust generation will take place regularly.	2	1
(2) Nuisance impact of dust on the surrounding areas has not yet been recorded.	0	0
SIGNIFICANCE	Before management	With management



(1) Air pollution due to dust generation will be low before and after management.						9	4
(2) Nuisance impact of dust on the surrounding areas will be low before and after management.						6	2
Cumulative impacts							
All mining activities and roads contribute to air pollution and nuisance.							
Environmental objective							
To minimise the generation of dust by mining activities.							
Management measures to be applied	Phase applicable to management measure	Management tools	Monitoring programmes	Management timeframe and schedule	Responsibilities for implementation and long-term maintenance	Financial provision for long-term maintenance and/or environmental costs	Mitigation hierarchy
Dust suppression on roads, crushing and screening plant to be conducted.	Operational	Water bowsers.	Site inspections	Daily	Mine manager	Part of operational costs	Minimise
All vehicles will drive within the speed limits of the mine ≤40 km/hr.	Operational until closure	Signage	Site inspections	Continuous	All personnel	No additional costs	Prevent
All vehicles and machinery must be maintained to prevent excessive exhaust emissions.	Operation and decommissioning phase	Maintenance register	Maintenance register	As per schedule of maintenance register	Mine manager	No additional costs. This forms part of the operating costs	Minimise.
Monitoring as per specialist input.							
Rehabilitation will aid in dust reduction. Depending on input from specialist.							
Stakeholder expectations and / or comments							
None received							
Residual and latent risks							
No residual or latent risks.							



8 Environmental noise

Activity:

A. Various activities on the mine.

Aspect and impact description:

(1) Nuisance impact of noise on the surrounding areas. The mobile equipment and the crushing and screening plant generate noise

Method for assessing risks:

Information for this section was extracted from the various specialist studies undertaken in line with the Section 102 integrated environmental authorisation as well as the 2014 approved EMP for Klipplaatdrift Mine. Additional impact assessment and management has been added where necessary.

CONSEQUENCE		
Nature / Intensity / Severity of Impact	Before management	With management
(1) Nuisance impact of noise on the surrounding areas will not affect the environmental functions.	1	0
Spatial extent of Impact	Before management	With management
(1) Nuisance impact of noise on the surrounding areas will be localised.	3	1
Duration of Impact	Before management	With management
(1) Nuisance impact of noise on the surrounding areas will be short term.	1	1
LIKELIHOOD		
Probability of potential occurrence of the Impact	Before management	With management
(1) Nuisance impact of noise on the surrounding areas is probable.	1	0
Frequency of potential occurrence of the Impact	Before management	With management
(1) Nuisance impact of noise on the surrounding areas has not yet been recorded.	0	0
SIGNIFICANCE	Before management	With management
(1) Nuisance impact of noise on the surrounding areas will be low before and after management.	6	2
Cumulative impacts		
The other activities in the area contribute to noise generation.		
Environmental objective		



Ensure environmental noise is not severely affected.							
Management measures to be applied	Phase applicable to management measure	Management tools	Monitoring programmes	Management timeframe and schedule	Responsibilities for implementation and long-term maintenance	Financial provision for long-term maintenance and/or environmental costs	Mitigation hierarchy
All vehicles and machinery must be maintained to prevent excessive noise.	Operation and decommissioning phase	Maintenance register	Maintenance register	As per schedule of maintenance register	Mine manager	No additional costs. This forms part of the operating costs	Minimise.
If any high noise areas are identified trees will be planted to reduce the noise. Berms could also be planted if noise is identified as a problem to neighbouring properties.	Operational	Complaints register	Complaint register	Only if necessary	Mine manager.	No additional costs.	Minimise.
Working hours are limited to nine hours a day for six days per week. Maintenance will be carried out during weekend periods	Operational	None	Site inspections	Continuous	Mine manager.	No additional costs.	Minimise.
Stakeholder expectations and / or comments							
None received.							
Residual and latent risks							
No residual or latent risks.							

9 Archaeological, historical and cultural aspects

Activity:

- A. Various activities on the mine.

Aspect and impact description:

- (1) Destruction of any archaeological, historical and cultural unearthed.

Method for assessing risks:



Information for this section was extracted from the various specialist studies undertaken in line with the Section 102 integrated environmental authorisation as well as the 2014 approved EMP for Klipplaatdrift Mine. Additional impact assessment and management has been added where necessary.

CONSEQUENCE							
Nature / Intensity / Severity of Impact				Before management	With management		
(1) Destruction of any archaeological, historical and cultural unearthed will alter the environmental functions.				2	0		
Spatial extent of Impact				Before management	With management		
(1) Destruction of any archaeological, historical and cultural unearthed will be at the activity.				1	1		
Duration of Impact				Before management	With management		
(1) Destruction of any archaeological, historical and cultural unearthed will be permanent.				4	4		
LIKELIHOOD							
Probability of potential occurrence of the Impact				Before management	With management		
(1) Destruction of any archaeological, historical and cultural unearthed is unlikely.				0	0		
Frequency of potential occurrence of the Impact				Before management	With management		
(1) Destruction of any archaeological, historical and cultural unearthed has not yet happened.				0	0		
SIGNIFICANCE				Before management	With management		
(1) Destruction of any archaeological, historical and cultural unearthed will be low before and after management.				7	5		
Cumulative impacts							
None currently.							
Environmental objective							
Ensure that if any archaeological, historical and cultural resource is unearthed, it would be correctly managed.							
Management measures to be applied	Phase applicable to management measure	Management tools	Monitoring programmes	Management timeframe and schedule	Responsibilities for implementation and long-term maintenance	Financial provision for long-term maintenance and/or environmental costs	Mitigation hierarchy



<p>Archaeological deposits can occur below ground level. Should any archaeological artefacts or skeletal material be revealed in the area during construction activities, such activities should be halted, and a university or museum notified in order for an investigation and evaluation of the find(s) to take place (cf. HRA).</p> <p>Prior to the commencement of any work or action that will impact or effect a heritage resource, the relevant authorisation must be obtained from the SAHRA.</p> <p>Where there is uncertainty with regard to the status of a heritage resource, object, place or artefact, or any legislative or other policy issue the SAHRA can be contacted for clarity: SAHRA, P.O. Box 2771, CAPE TOWN, 8000, Tel: (021) 465 2198, Fax: (021) 465 5789, Email: info@sahra.org.za</p>	Operational	General awareness & Phase I Cultural Heritage Resources Impact Assessment (African Heritage Consultants CC, 2015)	Site inspections	Inspections during mining progression	Mine manager	Only necessary if any resource is found.	Prevent
<p>Stakeholder expectations and / or comments</p> <p>None received.</p>							
<p>Residual and latent risks</p> <p>No residual or latent risks.</p>							

10 Socio-economic

Activity:

- A. Transportation of product.
- B. Mining of andalusite. The quarry will be mined in a typical open cast high wall and benching method.

Aspect and impact description:



- (1) Safety of community due to traffic from mine.
- (2) There is always safety risk for the community; however, the mining area will be fenced-off.

Method for assessing risks:

Information for this section was extracted from the various specialist studies undertaken in line with the Section 102 integrated environmental authorisation as well as the 2014 approved EMP for Klipplaatdrift Mine. Additional impact assessment and management has been added where necessary.

CONSEQUENCE		
Nature / Intensity / Severity of Impact	Before management	With management
(1) Safety of community due to traffic from mine could lead to fatalities, if not managed.	3	0
(2) Safety risk could lead to fatalities, if not managed.	3	0
Spatial extent of Impact	Before management	With management
(1) Safety of community due to traffic from mine will be localised.	3	3
(2) Safety risk is only associated at the activity itself.	1	1
Duration of Impact	Before management	With management
(1) Safety of community due to traffic from mine will be permanent.	4	4
(2) The safety risk will be permanent if not rehabilitated.	4	3
LIKELIHOOD		
Probability of potential occurrence of the Impact	Before management	With management
(1) Safety of community due to traffic from mine is probable.	1	0
(2) No such safety incidents have yet taken place, but this can still be a possibility if not managed correctly.	1	0
Frequency of potential occurrence of the Impact	Before management	With management
(1) Safety of community due to traffic from mine has not yet happened.	0	0
(2) Even though the activity is ongoing, this safety impact has never occurred.	0	0
SIGNIFICANCE	Before management	With management
(1) Safety of community due to traffic from mine will be medium before and low after management.	11	7
(2) The safety risk will be low before and after management.	9	5
Cumulative impacts		
All roads in the area contribute to traffic.		



Environmental objective							
To ensure the safety of the community on the site.							
Management measures to be applied	Phase applicable to management measure	Management tools	Monitoring programmes	Management timeframe and schedule	Responsibilities for implementation and long-term maintenance	Financial provision for long-term maintenance and/or environmental costs	Mitigation hierarchy
All high walls will be bermed-off.	Rehabilitation and closure.	Rehabilitation plan	Rehabilitation plan	During rehabilitation	Mine surveyor and mine manager.	Refer to the financial provision.	Rehabilitation
Ensure the area remains fenced-off until after closure.	Operational until closure.	Fencing	Site inspections	Ongoing	Mine manager.	Part of operational costs.	Avoid / prevent
All vehicles will drive within the speed limits of the mine and adhere to national road regulations.	Operational until closure	Signage	Site inspections	Continuous	All personnel	No additional costs	Prevent
Stakeholder expectations and / or comments							
None received.							
Residual and latent risks							
No residual or latent risks.							



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

Impact assessment

The methodology used to assess the significance of an impact is based on the requirements as set out in EIA Regulations, (GN 982) of 2014 i.t.o. the NEMA as well as the Proposed National Guideline on Minimum Information Requirements for Preparing EIA for Mining Activities that Require EA, of 2018, GN 86 in terms of NEMA. The impact significance methodology described below also complies to Appendix B of the Operational Guideline to Integrated Water and Waste Management of 2010 in terms of the NWA. In the event of any Section 21c&i water uses in terms of the NWA being assessed, Appendix A of the General Authorisations of 2016, GN 509 in terms of the NWA will be used to construct a risk matrix. Regulation 3(b) of the General Authorisations of 2016, GN 509 in terms of the NWA states that a suitably qualified SACNASP professional member must determine risks associated with this risk matrix.

Impact identification and prediction means forecasting the change of environmental parameters due to developmental patterns. These parameters may also be changing due to climate change and should be included.

Method of assessment: Impact identification and prediction is a stepwise procedure to identify the direct, indirect and cumulative impacts (relating to both positive and negative impacts) for which a proposed activity and its alternatives will have on the environment as well as the community. This should be undertaken by determining the geographical, physical, biological, social, economic, heritage and cultural sensitivity aspects of sites and locations as well as the risk of impact of the proposed activity. Refer to part A(h)(iv) for a complete description of these environmental attributes. Sources of data to be used for gathering data on the environmental attributes as well as the impacts include; monitoring / sampling data collected and stored, assumptions and actual measurements, published data available from the departments or other stakeholders in the area as well as specialist studies. Likely impacts should be described qualitatively and then studied separately in detail. This provides consistent and systematic basis for the comparison and application of judgements.

Significance rating: Ratings should then be assigned to each criterion. Significance of impacts should be determined for each phase of the mining lifecycle this includes; preconstruction, construction, operational, closure (including decommissioning) and post closure phases. The significance of impacts should further be assessed both with and without mitigation action. The description of significance is largely judgemental, subjective and variable. However, generic criteria can be used systematically to identify, predict, evaluate and determine the significance of impacts resulting from project construction, operation and decommissioning. The process of determining impact magnitude and significance should never become mechanistic. Impact magnitude is determined by empirical prediction, while impact significance should ideally involve a process of determining the acceptability of a predicted impact to society. Making the process of determining the significance of impacts more explicit, open to comment



and public input would be an improvement of environmental assessment practice. Impact magnitude and significance should as far as possible be determined by reference to either legal requirements (accepted scientific standards) or social acceptability. If no legislation or scientific standards are available, the EAP can evaluate impact magnitude based on clearly described criteria. A matrix selection process is the most common methodology used in determining and ranking the site sensitivities:

- The consequence: includes the nature / intensity / severity of the impact, spatial extent of the impact, and duration of the impact.
 - The nature / intensity / severity of the impact: An evaluation of the effect of the impact related to the proposed development on the receiving environment. The impact can be either positive or negative. A description should be provided as to whether the intensity of the impact is high, medium or low or has no impact in terms of its potential for causing negative or positive effects. Cognisance should be given to climate change which may intensify impacts.
 - The spatial extent of the impact: Indication of the zone of influence of the impact: A description should be provided as to whether impacts are either limited in extent or affect a wide area or group of people. Cumulative impacts must also be considered as the extent of the impact as may increase over time.
 - The duration of the impact: It should be determined whether the duration of an impact will be short-term, medium term, long term or permanent. Cumulative impacts must also be considered as the duration of the impact as it may increase over time.
- The likelihood: includes the probability of the potential occurrence of the impact, and frequency of the potential occurrence of the impact
 - The probability of the impact: The probability is the quality or condition of being probable or likely. The probability must include the degree to which these impacts can be reversed; may cause irreplaceable loss of resources; and can be avoided, managed or mitigated
 - The frequency of the potential occurrence of the impact.
- The significance: This is worst case scenario without any management measures. See below how significance is determined: Impact that may have a notable effect on one or more aspects of the environment or may result in noncompliance with accepted environmental quality standards, thresholds or targets and is determined through rating the positive and negative effects of an impact on the environment based on criteria such as duration, magnitude, intensity and probability of occurrence. Mitigation measures should be provided with evidence or motivation of its effectiveness



Example of significance rating:

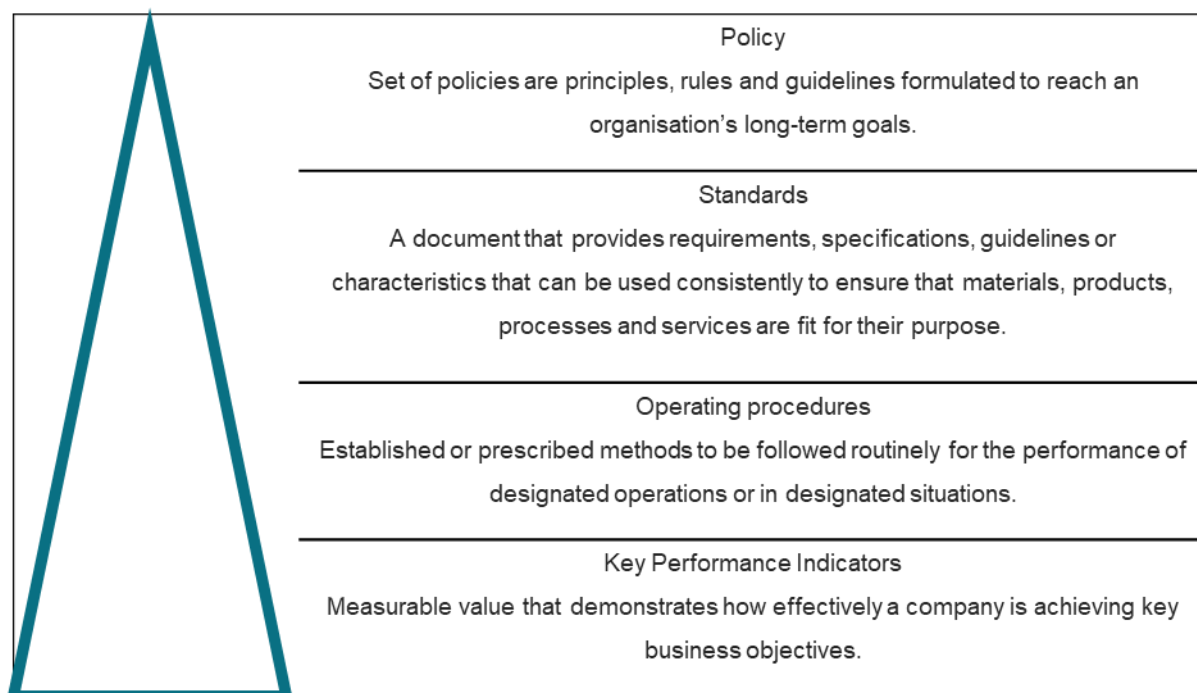
		Before management	With management	
CONSEQUENCE	Nature / Intensity / Severity of Impact			
	Negligent	The impact is listed but it is deemed negligent.	0	0
	Low	Impacts affect the environmental in such a way that natural, cultural and/or social functions and processes are not affected.	1	1
	Medium	Impacts affect the environment in such a way that natural, cultural and/or social functions and processes are altered	2	2
	High	Impacts affect the environment in such a way that natural, cultural and/or social functions and processes will temporarily or permanently cease.	3	3
	Spatial extent of Impact			
	Activity	Impact occurs only at activity	1	1
	Site	Impact occurs on the site	2	2
	Local	Impact occurs outside of site but within boundaries.	3	3
	Regional	Impact occurs outside of local boundaries.	4	4
	Duration of Impact			
	Short-term	Through dilution and dispersion, the impact reduces to insignificant within 1 week.	1	1
	Medium-term	Through dilution and dispersion, the impact reduces to insignificant within the life of the mine.	2	2
	Long-term	The impact will cease after the operational life of the mine either because of natural process or by human intervention	3	3
Permanent	Where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.	4	4	
LIKELIHOOD	Probability of potential occurrence of the Impact			
	Improbable	The possibility of the impact materializing is very low either because of design or historic experience	0	0
	Probable	There is a distinct possibility that the impact will occur	1	1
	Highly probable	It is most likely that the impact will occur	2	2
	Definite	The impact will occur regardless of any prevention measures	3	3
	Frequency of potential occurrence of the Impact			
	Currently not occurring	Currently this impact is not occurring.	0	0
Once-off	Impact occurs only once-off	1	1	

	Regularly	Impact occurs regularly.	2	2							
	Continuously	Impact occurs continuously	3	3							
CONSEQUENCE											
LIKELIHOOD		2	3	4	5	6	7	8	9	10	11
	0	2	3	4	5	6	7	8	9	10	11
	1	3	4	5	6	7	8	9	10	11	12
	2	4	5	6	7	8	9	10	11	12	13
	3	5	6	7	8	9	10	11	12	13	14
	4	6	7	8	9	10	11	12	13	14	15
	5	7	8	9	10	11	12	13	14	15	16
	6	8	9	10	11	12	13	14	15	16	17
Low	Where it will not have a significant influence on the environment. Management measures can be proposed to ensure that significance does not increase							3- 10			
Medium	Where it could have a significant influence on the environment unless it is mitigated or managed							11- 15			
High	Where it would have a significant influence on the environment regardless of any possible mitigation and hence must be either avoided or managed							16- 17			
Medium positive	In the case of an impact having a positive outcome.							High positive			

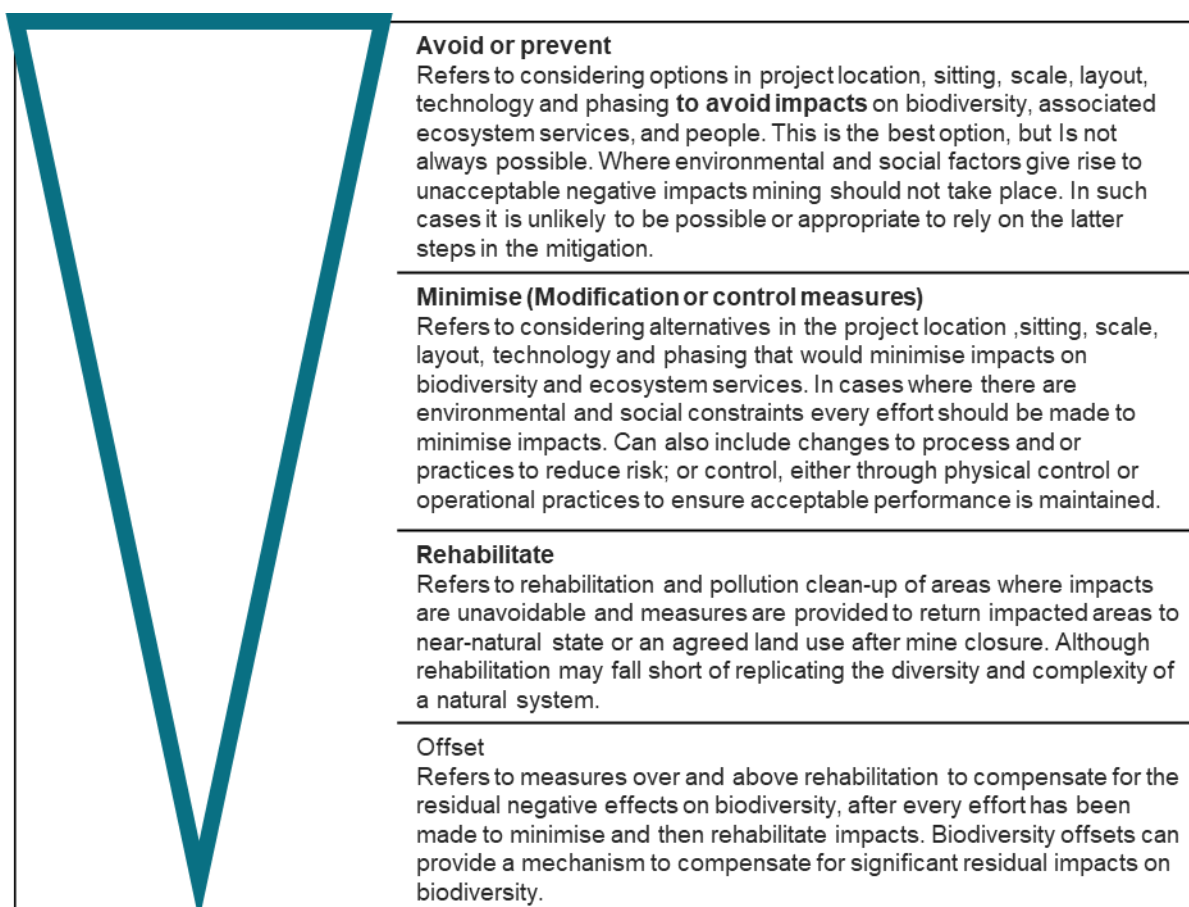
Mitigation and management

Management methodology is based on the requirements as set out in EIA Regulations, (GN 982) of 2014 i.t.o. the NEMA as well as the Proposed National Guideline on Minimum Information Requirements for Preparing EIA for Mining Activities that Require EA, of 2018, GN 86 in terms of NEMA; and the Mining and Biodiversity Guideline (Mainstreaming Biodiversity into the Mining Sector) IDB of 2013 in terms of the MPRDA.

Management statements detail the processes, procedures and practices required to achieve an impact management outcome. A hierarchy of management tools used can also be used as seen below.



Mitigation should include measures in the following order of priority. The aim is to prevent adverse impacts from happening or, where this is unavoidable, to limit their significance to an acceptable level.



Avoiding or preventing impacts

If the biodiversity (an ecosystem, habitat for threatened species, ecological corridor or area that provides essential ecosystem services) is of conservation value or importance, it is best to plan to avoid or prevent impacts altogether by changing the location, siting, method or processes of the mining activities and related infrastructure.

Minimising impacts

Minimising impacts of mining is a mitigation measure that deals with the environment in general. In areas where the biodiversity is to be affected is of conservational value or importance, then every effort should be made to minimise those impacts that cannot be avoided or prevented. Mining companies should strive to minimise impacts on biodiversity to ensure environmental protection. Section 2 of NEMA contains environmental management principles that resonates with minimising the impact rather than stopping at mitigation, this is imperative in the mining sector.

Rehabilitating impacted areas

Rehabilitation is the measures that are undertaken to “as far as it is reasonably practicable, rehabilitate the environment affected by the prospecting or mining operations to its natural or predetermined state or to a land use which aligns to the generally accepted principle of sustainable development. A closure plan is an essential part of rehabilitation and must be developed based on the establishment of the closure objectives and criteria.

Biodiversity offsets

Biodiversity offsets are measurable conservation gains that help to balance any significant biodiversity losses that remain after actions to avoid, minimise and restore negative impacts have been taken. They are the last stage of mitigation and should be considered after appropriate avoidance, minimisation, and rehabilitation/restoration measures have been applied already.

When dealing with management, impact management outcomes must:

- be set for the expected activity-based impacts;
- describe the desired outcome of the management measure/s prescribed or the standard to be achieved (environmental objective);
- be clearly documented and identified per project phase as in the impact identification and significance rating process (this must be aligned to the mines closure objectives, and must therefore include predicted long-term result of the applied management measures);
- be measurable to determine compliance, which includes time frames and schedule for the implementation of the management measures; responsibilities for implementation and long-term maintenance of the management measures; financial provision for long-term maintenance; and monitoring programmes to be implemented;
- be informed by stakeholder expectations; and
- ensure legal compliance;



Finally, the impact assessment must refer to the residual and latent impact after successful implementation of the management measures.

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

No alternatives are applied for.

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

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

ix) The outcome of the site selection matrix. Final site layout plan

The layout plan will be finalised once input is received from the registered I&APs and stakeholders.

x) Motivation where no alternative sites were considered

There is no alternative to the opening of a quarry, placement of overburden, construction of haul roads, construction of a crushing a screening plant and a dryer or the backfilling of mine residue. The final decommissioning and rehabilitation will be discussed with the community. Furthermore, all activities will be planned with the aid of a specialist.

xi) Statement motivating the preferred site

Not applicable. No alternative considered.

i) Plan of study for the Environmental Impact Assessment process

i) Description of alternatives to be considered including the option of not going ahead with the activity

Refer to Part A(h)(v) above for a full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity.

ii) Description of the aspects to be assessed as part of the environmental impact assessment process

All aspects to be assessed are included in Section 2(h)(iv&v) of this report.

iii) Description of aspects to be assessed by specialists

The following specialist studies are undertaken:

- Air quality impact assessment;



- Geohydrological impact assessment;
- Soil, land capability, land use and hydrology assessment;
- Stormwater management plan; and
- Aquatic ecosystem delineation, fauna and flora.

Previous studies that included the entire area to be disturbed:

- Environmental noise study
- Heritage impact assessment.

iv) Proposed method of assessing the environmental aspects including the proposed method of assessing alternatives

Refer to Section 2(h)(vi).

v) The proposed method of assessing duration significance

Refer to Section 2(h)(vi).

vi) The stages at which the competent authority will be consulted

DMR received the Integrated Environmental authorisation application form on 10 June 2019 and accepted the application on 24 June 2019. The section 102 technical application form was uploaded onto the SAMRAD system on 11 June 2019. The DMR will be consulted throughout as necessary. DWS is also consulted for the IWULA as discussed with them.

vii) Particulars of the public participation process with regard to the Impact Assessment process that will be conducted

1 Steps to be taken to notify interested and affected parties

Refer to Section 2(h)(ii).

2 Details of the engagement process to be followed

Refer to Section 2(h)(ii).

3 Description of the information to be provided to Interested and Affected Parties

Refer to Section 2(h)(ii).

viii) Description of the tasks that will be undertaken during the environmental impact assessment process

Refer to Table 7 for the plan of study for the EIA in terms of NEMA.

Table 7: Plan of study for the EIA process

Date	Description
Underway	Specialist studies



Date	Description
June 2019	Submission of application
June 2019	Acceptance of application form
July 2019	Commencement of first phase PPP.
On or before 14 June 2019	ESR to I&APs and stakeholders
14 June 2019	ESR to DMR
August 2019	Draft EIA/EMP to I&APs and stakeholders. This EIA/EMP 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 EIA/EMP will be included in the final EIA/EMP prior to submission to DMR.
October 2019	Final EIA/EMP to DMR. This EIA/EMP will contain all comments from I&APs and stakeholders.

ix) Measures to avoid, reverse, mitigate, or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored

Refer to Section 2(h)(v).

j) Other Information required by the competent Authority

Any impact raised by an I&AP will be included in the EIA/EMP.

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

24 (4) Procedures for the investigation, assessment and communication of the potential consequences or impacts of activities on the environment-	
(a) must ensure, with respect to every application for an EA-	
i. Coordination and cooperation between organs of state in the consideration of assessments where an activity falls under the jurisdiction of more than one organ of state;	DMR is the only applicable authority for the proposed integrated EA and thus the only organ of state. DWS is, however the competent authority for the IWULA. All other organs of state and stakeholders will receive the ESR as well as the EIA/EMP for review.
ii. That the findings and recommendations flowing from an investigation, the general objectives of integrated environmental management laid down in this Act and the principles of environmental management set out in section 2 are taken into account in any decision made by an organ of state in relation to any proposed policy, programme, process, plan or project;	All the findings from investigations have been included in this ESR.



iii. That a description of the environment likely to be significantly affected by the proposed activity is contained in such application;	Environmental baseline information, based in specialist studies, has been included in this ESR.
iv. Investigation of the potential consequences for or impacts on the environment of the activity and assessment of the significance of those potential consequences or impacts; and	Investigation of impact on the environment and assessment of the significance of the potential impacts have been done by specialists.
v. Public information and participation procedures which provide all I&APs, including all organs of state in all spheres of government that may have jurisdiction over any aspect of the activity, with a reasonable opportunity to participate in those information and participation procedures; and	Refer to Section 2(h)(ii) for the PPP.
(b) must include, with respect to every application for an EA and where applicable-	
i. Investigation of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity;	Investigation of impact on the environment and assessment of the significance of the potential impacts have been done by specialists.
ii. Investigation of mitigation measures to keep adverse consequences or impacts to a minimum;	Investigation of mitigation measures were done by the specialists.
iii. Investigation, assessment and evaluation of the impact of any proposed listed or specified activity on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), excluding the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act;	Refer to Section 2(h)(v)(13)
iv. Reporting on gaps in knowledge, the adequacy of predictive methods and underlying assumptions, and uncertainties encountered in compiling the required information;	All gaps in knowledge, the adequacy of predictive methods and underlying assumptions, and uncertainties encountered in compiling the required information will be included in the EIA/EMP.
v. Investigation and formulation of arrangements for the monitoring and management of consequences for or impacts on the environment, and the assessment of the effectiveness of such arrangements after their implementation;	A monitoring plan will be included in the EIA/EMP.
vi. Consideration of environmental attributes identified in the compilation of information and maps contemplated in subsection (3); and	Environmental attributes identified were taken into consideration during the process.
vii. Provision for the adherence to requirements that are prescribed in a specific environmental management Act relevant to the listed or specified activity in question.	Refer to Section 2(e) for adherence to requirements that are prescribed in a specific environmental management Act relevant to the listed or specified activity in question.

l) Undertaking regarding correctness of information

I Deshree Pillay, herewith undertake that the information provided in the foregoing report is correct, and that the comments and inputs from stakeholders and I&APs has been correctly recorded in the report.



Signature of the EAP

DATE: June 2019

m) Undertaking regarding level of agreement

I Deshree Pillay, herewith undertake that the information provided in the foregoing report is correct, and that the level of agreement with I&APs and stakeholders has been correctly recorded and reported herein.



Signature of the EAP

DATE: June 2019

-END-

References

- CEMS, 2014: Faunal Assessment Report, SAMREC: Krugerspost Andalusite Mine, Limpopo Province
- Cllr S Mashigo-Sekgobela and team, 2017-2022: Thaba Chweu Local Municipality Integrated Development Plan
- Data World Pty Ltd, 2019: Mpumalanga Spatial Development Framework
- Ehlanzeni District Municipality, 2018-2019: Ehlanzeni Final IDP and budget review
- GCS (Pty) Ltd, 2007: Hydrological analysis and determination of floodlines for the Krugerspost Andalusite Mine (Pty) Ltd., located in the Magisterial District of Lydenburg, Mpumalanga Province
- IMERYS, 2019: Mine works programme
- Rehab green, 2014: Soil, land capability and land use assessment of the proposed open pit area of the Krugerspost Andalusite Mine north of Lydenburg, Limpopo Province
- Shangoni Management Services (Pty) Ltd, 2012: Klipplaatdrift Mine EMP
- Shangoni Management Services (Pty) Ltd, 2013: Desktop Hydrogeological Study
- Shangoni Management Services (Pty) Ltd, 2013: SAMREC (Pty) Ltd. — Krugerspost Andalusite Mine: Integrated Water and Waste Management Plan
- Shangoni Management Services (Pty) Ltd, 2014: Klipplaatdrift Mine EMP
- National Environmental Management Act No 107 of 1998 (as amended)
- National Environmental Management: Air Quality Act 39 of 2004 (as amended)
- National Environmental Management Waste Act No 59 of 2008 (as amended)
- National Forest Act No 84 of 1998
- National Heritage Resources Act no 25 of 1999
- National Water Act 36 of 1998

