



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

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

IMPORTANT NOTICE

Kindly note that:

1. As from 8 December 2014, this document serves as the application form, and incorporates the requisite documents that are to be submitted together with the application for the necessary environmental authorisations in terms of the said Acts.
2. This application form is applicable while the Mineral and Petroleum Resources Development Amendment Act of 2008 is in effect, as the form may require amendment should the Act be further amended.
3. Applicants are required to apply for the necessary water use licence and any other authorisations or licences to the relevant competent authorities as required by the relevant legislation. Upon acceptance of an application for a right or permit in terms of the MPRDA, applicants will be required to provide evidence to the Regional Manager that a water use licence has been applied for.
4. The Regional Manager will respond to the application and provide the reference and correspondence details of the Competent Authority, and in the event that the application for a right or permit is accepted, together with the date by which the relevant environmental reports must be submitted. Notwithstanding anything that may appear to be stated to the contrary in the acceptance letter, the timeframes are in fact aligned and the prescribed timeframes for the submission of documents as regulated by the NEMA regulations must be strictly adhered to.
5. The application must be typed within the spaces provided in the form. The sizes of the spaces provided are not necessarily indicative of the amount of information to be provided. Spaces are provided in tabular format and will extend automatically when each space is filled with typing.
6. The failure to submit complete information as required in this application form may result in the refusal of the application for an environmental authorisation and consequently of the right or permit applied for.
7. This application must be submitted through the SAMRAD online application system of the Department of Mineral Resources under "Other documents to upload".
8. Unless protected by law, all information filled in on this application form will become public information on receipt by the competent authority. Any interested and affected party should and shall be provided with the information contained in this application on request, during any stage of the application process.
9. Please note that an application fee is payable in terms of the National Environmental Management Act and the National Waste Management Act, which fees must be paid upon lodgement of the application. Should the said application fees not be paid as prescribed the application for a right or permit in terms of the Mineral and Petroleum Resources Development Act cannot be considered to have been made in the prescribed manner and the said application for a right or permit will have to be rejected. In this regard the type of applications must be identified in the table below.

PLEASE STATE TYPE OF AUTHORISATIONS BEING APPLIED FOR.

Application type	Applicable Fee	Mark with an X where applicable
NEMA S&EIR application on its own	R10 000.00	<input type="checkbox"/>
NEMA BAR application on its own	R 2 000.00	<input type="checkbox"/>
NEMWA S&EIR application on its own	R10 000.00	<input type="checkbox"/>
NEMWA BAR application on its own	R 2 000.00	<input type="checkbox"/>
NEMA S&EIR application combined with NEMWA S&EIR application	R 15 000.00	<input checked="" type="checkbox"/>
NEMA BAR application combined with NEMWA BAR application	R 3 000.00	<input type="checkbox"/>
NEMA S&EIR application combined with NEMWA BAR application	R 11 000.00	<input type="checkbox"/>

1. CONSULTATION BASIC ASSESSMENT AND/OR SCOPING REPORT

This is an application for a Mining Right requiring a NEMA S&EIR application combined with NEMWA S&EIR application.

2. DETAILS OF THE APPLICANT

Project applicant:	Monte Cristo Commercial Park (Pty) Ltd		
Registration no (if any):	2008/005305/07		
Trading name (if any):	Monte Cristo Commercial Park (Pty) Ltd		
Responsible Person, (e.g. Director, CEO, etc.):	Director		
Contact person:	Mark van Wyk		
Physical address:	Units 18 and 19 Tuscan Estate, Van Heerden Street, Libradene, 1459		
Postal address:	P O Box 17736, Sunward Park		
Postal code:	1470	Cell:	083 449 3581
Telephone:	011 913 1719	Fax:	011 913 2868
E-mail:	info@vldc.co.za		086 671 3465

3. ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP) INFORMATION

EAP:	Nangamso Zizo Siwendu		
Professional affiliation/registration:	Registration as an EAP with the Environmental Assessment Practitioners Association of South Africa (EAPASA) is not applicable at this stage		
Contact person (if different from EAP):	Same as above		
Company:	Dunrose Trading 186 (Pty) Ltd T/A Shango Solutions		
Physical address:	HHK House, Corner Ruth Crescent and Ethel Ave, Northcliff Ext 12		
Postal address:	P.O. Box 2591, Cresta		
Postal code:	2118	Cell:	072 669 6250
Telephone:	011 678 6504	Fax:	011 678 9731
E-mail:	zizo@shango.co.za		

If an EAP has not been appointed please ensure that an independent EAP is appointed as stipulated by the NEMA Regulations, prior to the commencement of the process.

The declaration of independence and the Curriculum Vitae (indicating the experience with environmental impact assessment and relevant application processes) of the EAP must also be attached as **Appendix 1**.

4. PROJECT DESCRIPTION

Farm Name:	Woodlands 407 (portion RE, RE of portion 1 and portion 3)
Application area (Ha)	The application area is approximately 858.5825 hectares (ha) in aerial extent
Magisterial district:	Parys Magisterial District
Distance and direction from nearest town	The application area is situated approximately 15 kilometres (km) northwest of the town of Sasolburg in the Free State Province of South Africa
21 digit Surveyor General Code for each farm portion	F02500000000040700000 F02500000000040700001 F02500000000040700003
Locality map	Please find locality map attached as Appendix 2
Description of the overall activity. (Indicate Mining Right, Mining Permit, Prospecting right, Bulk Sampling, Production Right, Exploration Right, Reconnaissance permit, Technical co-operation permit, Additional listed activity)	<p>Monte Cristo Commercial Park (Pty) Ltd is applying for a Mining Right in terms of Section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002, as amended) (MPRDA). Commodities to be mined include sand, gravel and diamond (alluvial). The application area covers approximately 858.5825 hectares (ha) over three farm portions: (i) Remaining extent (RE), (ii) Remainder of portion 1 and (iii) Portion 3 of the farm Woodlands 407, located approximately 15 km northwest of the town of Sasolburg, in the Free State Province of South Africa.</p> <p>The mining methodology to be employed will be opencast and will involve the development of open pits to a maximum depth of 12 metres (m). The following infrastructure components will be established for the mining process:</p> <ul style="list-style-type: none"> • Construction of dams • Wash plant for sand mining • Rotary wash plant for alluvial diamond mining • Clean and dirty water management infrastructure (pollution control dam, settling ponds, storm water runoff structures, water pipeline network as well as pump stations) • Change houses and an administrative block • Topsoil and run-of mine stockpiles • Haul roads <p>Additional mining and processing infrastructure will include haul roads, workshops, conveyors, powerlines, offices, change houses and portable chemical ablation facilities for employees during construction and operational phases.</p> <p>Any mining or mineral processing related material that cannot be sold will be used to backfill the mined out pits during rollover rehabilitation. The anticipated life of mine is 30 years with an option to renew if the mining programme is not yet completed.</p> <p>The closure objective is to develop the farm portions as an Eco-Estate with game, residential and hospitality facilities on the banks of the Vaal River. An Environmental Authorisation was obtained for the Eco-Estate (Appendix 3).</p>

5. ACTIVITIES TO BE AUTHORISED

(Please provide copies of Environmental Authorisations obtained for the same property as **Appendix 3**).

For an application for authorisation indicated. Please that involves more than one listed activity that, together, make up one development proposal, all the listed activities pertaining to this application must be indicated. Please note that any authorisation that may result from this application will only cover activities specifically applied for). (Attach a proposed site plan, drawn to a scale acceptable to the competent Authority, showing the location of all the activities to be applied for, as **Appendix 2**)

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. for mining ,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	AERIAL EXTENT OF THE ACTIVITY (Ha or m ²)	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (GN 324, GN 325 and GN 327)	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
Opencast mining (350 ha) and associated infrastructure (13.5 ha): <ul style="list-style-type: none"> • Topsoil and run-of mine stockpiles • Haul roads • Workshops • Conveyors • Change houses • Portable chemical ablution facilities • Fencing • Security gate • Stockpiling and berms 	Overall surface area of 363.5 ha	X	Activity 17 of GN 325 of 7 April 2017: Any activity including the operation of that activity which requires a mining right in terms of section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including – <ul style="list-style-type: none"> (a) Associated infrastructure, structure and earthworks, directly related to the extraction of a mineral resource or (b) The primary processing of a mineral resource including winning extraction, classifying, concentrating, crushing, screening or washing but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in Listing Notice 2 applies	

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. for mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	AERIAL EXTENT OF THE ACTIVITY (Ha or m²)	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (GN 324, GN 325 and GN 327)	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
<ul style="list-style-type: none"> • Change house • Administrative block (including mine offices) 			Activity 28 of GN 325 of 7 April 2017: Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or afforestation on or after 01 April 1998 and where such development: <ul style="list-style-type: none"> (i) Will occur inside an urban area, where the total land to be developed is bigger than 5 hectares or (ii) Will occur outside an urban area, where the total land to be developed is bigger than 1 hectare 	
Establishment of a sand beneficiation plant	Contained in the 13.5 ha	X	Activity 6 of GN 325 of 7 April 2017: The development of facilities or infrastructure for any process which requires a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the generation of emissions, pollution or effluent, excluding <ul style="list-style-type: none"> (i) Activities which are identified and included in Listing Notice 1 of 2014 (ii) Activities which are included in the list of waste management activities published in terms of Section 16 of the National 	

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. for mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	AERIAL EXTENT OF THE ACTIVITY (Ha or m²)	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (GN 324, GN 325 and GN 327)	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
			Environmental Management: Waste Act, 2008 (Act 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies (iii) The development of facilities or infrastructure for the treatment of effluent, polluted water, wastewater, or sewage where such facilities have a daily throughput capacity of 2 000 cubic metres or less (iv) Where the development is directly related to aquaculture facilities or infrastructure where the wastewater discharge capacity will not exceed 50 cubic metres per day	
Clearance of vegetation for mining activities	Overall surface area of 363.5 ha	X	Activity 15 of GN 325 of 7 April 2017: The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for - (i) The undertaking of a linear activity; or (ii) Maintenance purposes undertaken in accordance with a maintenance management plan	

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. for mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	AERIAL EXTENT OF THE ACTIVITY (Ha or m²)	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (GN 324, GN 325 and GN 327)	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
			Activity 12 (b) of GN 324 of 7 April 2017: The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan – <ul style="list-style-type: none"> (i) Within an critically endangered or endangered ecosystem listed in terms of Section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment, 2004 (ii) Within critical biodiversity areas identified in bioregional plans (iii) On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning 	
Establishment of a pollution control dam	Contained in the 13.5 ha	X	Activity 13 of GN 327 of 7 April 2017: The development of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50 000	

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. for mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	AERIAL EXTENT OF THE ACTIVITY (Ha or m²)	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (GN 324, GN 325 and GN 327)	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
			cubic metres or more, unless such storage falls within the ambit of activity16 in Listing Notice 2 of 2014	
Establishment of raw water dams	Contained in the 13.5 ha	X	Activity 16 of GN 325 of 7 April 2017: The development of a dam where the highest part of the dam wall, as measured from the outside of the wall to the highest part of the wall, is 5 metres or higher or where the high-water mark of the dam covers an area of 10 hectares or more	
Construction of a 2 km water pipeline from a pump station on the Vaal River bank to the plant area	Contained in the 13.5 ha	X	Activity 9 of GN 327 of 7 April 2017: The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water – <ul style="list-style-type: none"> (i) With an internal diameter of 0.36 metres or more or (ii) With a peak throughput of 120 litres per second or more Activity 12(ii)(c) of GN 327 of 7 April 2017: The development of infrastructure or structures with a physical footprint of 100 metres or more where such development occurs – if no development setback exists, within 32 metres of a watercourse measures from the edge of a watercourse	

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. for mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	AERIAL EXTENT OF THE ACTIVITY (Ha or m²)	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (GN 324, GN 325 and GN 327)	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
			Activity 12 (b)(iv) of GN 324 of 7 April 2017: The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan – Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland	
Establishment of slimes dams (settling ponds)	Contained in the 13.5 ha	X	Activity 11 of GNR 633 of 24 July 2015 (Category B): The establishment or reclamation of a residue stockpile or residue deposits resulting from activities which require a mining right, exploration right or production right in terms of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002) Activity 10 of GNR 921 of 29 November 2013 (Category B): The construction of a facility for a waste management activity listed in Category B of this Schedule (not in isolation to associated waste management activity)	X
Establishment of a diesel storage facility	Contained in	X	Activity 14 of GN 327 of 7 April 2017:	

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. for mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	AERIAL EXTENT OF THE ACTIVITY (Ha or m²)	LISTED ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (GN 324, GN 325 and GN 327)	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act). (Mark with an X)
	the 13.5 ha		The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres	
Development of a haul road	Contained in the 13.5 ha	X	Activity 24 (ii) of GN 327 of 7 April 2017: The development of a road with a reserve wider than 13,5 metres, or where no reserve exists, where the road is wider than 8 metres	

6. PUBLIC PARTICIPATION

(Provide details of the public participation process proposed for the application as required by Regulation.)

Details of the Public Participation process to be followed.

6.1.1. IDENTIFICATION OF INTERESTED AND AFFECTED PARTIES TO BE CONSULTED

IDENTIFICATION CRITERIA	Mark with an X where applicable	
	YES	NO
Will the landowner be specifically consulted?	X	
Will the lawful occupier on the property other than the Landowner be consulted?	X	
Will a tribal authority or host community that may be affected be consulted?	X	
Will recipients of land claims in respect of the area be consulted?	X	
Will the landowners or lawful occupiers of neighbouring properties be identified?	X	
Will the local municipality be consulted?	X	
Will the Authority responsible for power lines within 100 metres of the area be consulted?	X	
Will Authorities responsible for public roads or railway lines within 100 metres of the area applied for be consulted?	X	
Will authorities responsible for any other infrastructure within 100 metres of the area applied for be consulted? (Specify)	X	
Will the Provincial Department responsible for the environment be consulted?	X	
Will all of the parties identified above be provided with a description of the proposed mining/prospecting operation as referred above?	X	
Will all the parties identified above be requested in writing to provide information as to how their interests (whether it be socio-economic, cultural, heritage or environmental) will be affected by the proposed mining project?	X	
Other, Specify		

6.1.2. DETAILS OF THE ENGAGEMENT PROCESS TO BE FOLLOWED

Steps to be taken to notify interested and affected parties (Describe the process to be undertaken to consult interested and affected parties including public meetings and one on one consultations. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings. Photographs of notice boards, and copies of advertisements and notices notifying potentially interested and affected parties of the proposed application must be attached as Appendix 4)	PROVIDE DESCRIPTION HERE Advertisements will be placed in a regional and national newspaper as well as the government gazette to notify Interested and Affected Parties (I&APs) of the Applicant's Mining Right application. In addition, site notices, letters of notification, and a background information document will be compiled and circulated to the surrounding areas of the proposed project site. All key stakeholders (e.g. national, provincial and local government, agricultural sector, organised business, host and adjacent communities, land claimants, other organisations, clubs, communities and unions, various non-government organisations) will be identified and captured on a project database. Notification letters and BIDs will be sent to them via registered mail, e-mail and faxes. Public meetings will be held at public venues (e.g. community hall) to present the findings of the environmental process.
Information to be provided to Interested	Compulsory

<p>and Affected Parties.</p>	<ul style="list-style-type: none"> • The site plan • List of activities to be authorised • Scale and extent of activities to be authorised • Typical impacts of activities to be authorised (e.g.: surface disturbance, dust, noise, drainage, fly rock, etc.) • The duration of the activity • Sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land
<p>Information to be required from Interested and Affected Parties.</p>	<p>Other, specify:</p> <ul style="list-style-type: none"> • The purpose of the proposed project • The mining methods to be implemented • Details of the affected properties (including parent farm and portion) • Details of the MPRDA and NEMA Regulations that must be adhered to • The mineral being mined for • Date by which comment, concerns and objections must be forwarded through to both the Environmental Assessment Practitioner (EAP) and the DMR respectively • Contact details of the EAP <p>Compulsory</p> <ul style="list-style-type: none"> • To provide information on how they consider that the proposed activities will impact on them or their socio-economic conditions • To provide written responses stating the suggestions to mitigate the anticipated impacts of each activity • To provide information on current land uses and their location within the area under consideration • To provide information on the location of environmental features on site to make proposals as to how and to what standard the impacts on site can be remedied, requested to make written proposals • To mitigate the potential impacts on their socio economic conditions to make proposals as to how the potential impacts on their infrastructure can be managed, avoided or remedied <p>Other, Specify:</p> <ul style="list-style-type: none"> • Details of the landowner and information on lawful occupiers • Details of any communities existing within the area • Details of any Tribal Authorities within the area • Details of any other I&APs that need to be notified • Details on any land developments proposed • Details of any perceived impacts to the environment that should be considered in the Basic Assessment Report • Any specific comments, concerns or objections to the proposed mining operation

7. **Description of the assessment process to be undertaken**

ITEM	DESCRIPTION
<p>Environmental attributes. Describe how the Environmental attributes associated with the development footprint will be determined.</p>	<p>A desktop study will be undertaken to study the project site as the receiving environment, and identify all environmental attributes therein. This will be done by the use of existing literature as well as spatial tools such as GIS. A baseline description of the environment will be included, providing a description of the following environmental attributes within the project footprint:</p> <ul style="list-style-type: none"> • Climate • Topography • Land-use and land cover • Vegetation • Geology • Visual • Traffic • Noise • Waste • Surface and ground hydrology • Heritage • Social • Economic
<p>Identification of impacts and risks. (Describe the process that will be used to identify impacts and risks).</p>	<p>The identification of potential impacts and risks for assessment will be undertaken through I&AP consultation and the development of an in depth understanding of the activities, actions and processes to be undertaken on site based on the EAP's experience with similar projects. As such, the potential impacts and risks on broad environmental aspects, in respect of each of the main project actions, activities and processes will be assessed during the environmental process.</p> <p>The impact assessment methodology is guided by the requirements of the NEMA 2014 EIA Regulations (as amended). The broad approach to the significance rating methodology is to determine the environmental risk (ER) by considering the consequence (C) of each impact (comprising Nature, Extent, Duration, Magnitude, and Reversibility) and relate this to the probability/likelihood (P) of the impact occurring. This determines the environmental risk. In addition, other factors including cumulative impacts, public concern, and potential for irreplaceable loss of resources, are used to determine a prioritisation factor (PF) which is applied to the ER to determine the overall significance (S).</p>
<p>Consideration of alternatives. Describe how alternatives, and in particular the alternatives to the proposed site layout and possible alternative methods or</p>	<p>The identification and assessment of alternatives is a key component to the success of any EIA process. Essentially, alternatives represent different means of meeting the general purpose and need of the proposed project through the</p>

<p>technology to be applied will be determined.</p>	<p>identification of the most appropriate method of development. Two levels of alternative screening will be investigated and considered which culminate into the identification of the feasible development alternative. The first level alternatives include land use, location, mining method, and site access alternatives. These alternatives will determine the optimal placement and process for the proposed mining operations. After these viable alternatives have been assessed (if any), the level two alternatives including technology, phasing and site layout alternatives will be considered in order to ensure the best practicable option is proposed for the activity.</p>						
<p>Process to assess and rank impacts. Describe the process to be undertaken to identify, assess and rank the impacts and risks each individual activity.</p>	<p><u>Method of Assessing Impacts:</u></p> <p>The impact assessment methodology is guided by the requirements of the NEMA 2014 EIA Regulations (as amended). The broad approach to the significance rating methodology is to determine the <u>environmental risk (ER)</u> by considering the <u>consequence (C)</u> of each impact (comprising Nature, Extent, Duration, Magnitude, and Reversibility) and relate this to the <u>probability/likelihood (P)</u> of the impact occurring. This determines the environmental risk. In addition other factors, including cumulative impacts, public concern, and potential for irreplaceable loss of resources, are used to determine a <u>prioritisation factor (PF)</u> which is applied to the ER to determine the overall <u>significance (S)</u>.</p> <p><u>Determination of Environmental Risk:</u></p> <p>The significance (S) of an impact is determined by applying a prioritisation factor (PF) to the environmental risk (ER).</p> <p>The environmental risk is dependent on the consequence (C) of the particular impact and the probability (P) of the impact occurring. Consequence is determined through the consideration of the Nature (N), Extent (E), Duration (D), Magnitude (M), and reversibility (R) applicable to the specific impact.</p> <p>For the purpose of this methodology the consequence of the impact is represented by:</p> $C = \frac{(E+D+M+R)}{4} \times N$ <p>Each individual aspect in the determination of the consequence is represented by a rating scale as defined in Table 1</p> <p>Table 1: Criteria for determining impact consequence.</p> <table border="1" data-bbox="703 1861 1410 2018"> <thead> <tr> <th>Aspect</th> <th>Score</th> <th>Definition</th> </tr> </thead> <tbody> <tr> <td>Nature</td> <td>- 1</td> <td>Likely to result in a negative/ detrimental impact</td> </tr> </tbody> </table>	Aspect	Score	Definition	Nature	- 1	Likely to result in a negative/ detrimental impact
Aspect	Score	Definition					
Nature	- 1	Likely to result in a negative/ detrimental impact					

	+1	Likely to result in a positive/ beneficial impact
Extent	1	Activity (i.e. limited to the area applicable to the specific activity)
	2	Site (i.e. within the development property boundary)
	3	Local (i.e. the area within 5 km of the site)
	4	Regional (i.e. extends between 5 and 50 km from the site)
	5	Provincial / National (i.e. extends beyond 50 km from the site)
Duration	1	Immediate (<1 year)
	2	Short term (1-5 years)
	3	Medium term (6-15 years)
	4	Long term (the impact will cease after the operational life span of the project)
	5	Permanent (no mitigation measure of natural process will reduce the impact after construction)
Magnitude/ Intensity	1	Minor (where the impact affects the environment in such a way that natural, cultural and social functions and processes are not affected)
	2	Low (where the impact affects the environment in such a way that natural, cultural and social functions and processes are slightly affected)
	3	Moderate (where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way)
	4	High (where natural, cultural or social functions or processes are altered to the extent that it will temporarily cease)
	5	Very high/don't know (where natural, cultural or social functions or processes are altered to the extent that it will permanently cease)
Reversibility	1	Impact is reversible without any time and cost
	2	Impact is reversible without incurring significant time and cost
	3	Impact is reversible only by incurring significant time and cost

	4	Impact is reversible only by incurring prohibitively high time and cost
	5	Irreversible Impact

Once the C has been determined the ER is determined in accordance with the standard risk assessment relationship by multiplying the C and the P (refer to). Probability is rated/scored as per Table 2.

Table 2: Probability scoring.

Probability	1	Improbable (the possibility of the impact materialising is very low as a result of design, historic experience, or implementation of adequate corrective actions; <25%)
	2	Low probability (there is a possibility that the impact will occur; >25% and <50%)
	3	Medium probability (the impact may occur; >50% and <75%)
	4	High probability (it is most likely that the impact will occur- > 75% probability)
	5	Definite (the impact will occur)

The result is a qualitative representation of relative ER associated with the impact (Table 3). ER is therefore calculated as follows:

$$ER = C \times P$$

Table 3: Determination of environmental risk.

Consequence	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
Probability						

The outcome of the environmental risk assessment will result in a range of scores, ranging from 1 through to 25. These ER scores are then grouped into respective classes as described in Table 4.

Table 4: Significance classes.

Environmental Risk Score	
Value	Description
< 9	Low (i.e. where this impact is unlikely to be a

	significant environmental risk)
≥9 and <17	Medium (i.e. where the impact could have a significant environmental risk)
≥ 17	High (i.e. where the impact will have a significant environmental risk)

The impact ER will be determined for each impact without relevant management and mitigation measures (pre-mitigation), as well as post implementation of relevant management and mitigation measures (post-mitigation). This allows for a prediction in the degree to which the impact can be managed/mitigated.

Impact Prioritisation:

In accordance with the requirements of Regulation 31 (2)(l) of the EIA Regulations (GNR 982, as amended in GN 326 of 2017), and further to the assessment criteria presented in the Section above it is necessary to assess each potentially significant impact in terms of:

- Cumulative impacts
- The degree to which the impact may cause irreplaceable loss of resources

In addition, it is important that the public opinion and sentiment regarding a prospective development and consequent potential impacts are considered in the decision making process.

In an effort to ensure that these factors are considered, an impact prioritisation factor (PF) will be applied to each impact ER (post-mitigation). This prioritisation factor does not aim to detract from the risk ratings but rather to focus the attention of the decision-making authority on the higher priority/significance issues and impacts. The PF will be applied to the ER score based on the assumption that relevant suggested management/mitigation impacts are implemented.

Table 5: Criteria for determining prioritisation.

Public response (PR)	Low (1)	Issue not raised in public response
	Medium (2)	Issue has received a meaningful and justifiable public response
	High (3)	Issue has received an intense meaningful and justifiable public response
Cumulative Impact (CI)	Low (1)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change

		Medium (2)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change
		High (3)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is highly probable/definite that the impact will result in spatial and temporal cumulative change
Irreplaceable loss of resources (LR)		Low (1)	Where the impact is unlikely to result in irreplaceable loss of resources
		Medium (2)	Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited
		High (3)	Where the impact may result in the irreplaceable loss of resources of high value (services and/or functions)

The value for the final impact priority is represented as a single consolidated priority, determined as the sum of each individual criteria represented in Table 5. The impact priority is therefore determined as follows:

$$\text{Priority} = \text{PR} + \text{CI} + \text{LR}$$

The result is a priority score which ranges from 3 to 9 and a consequent PF ranging from 1 to 2 (Table 6).

Table 6: Determination of prioritisation factor.

Priority	Ranking	Prioritisation Factor
3	Low	1
4	Medium	1.17
5	Medium	1.33
6	Medium	1.5
7	Medium	1.67
8	Medium	1.83
9	High	2

In order to determine the final impact significance the PF is multiplied by the ER of the post mitigation scoring. The ultimate aim of the PF is to be able to increase the post mitigation environmental risk rating by a full ranking class, if all the priority attributes are high (i.e. if an impact comes out with a medium environmental risk after the conventional impact rating, but there is significant cumulative impact potential, significant public response, and significant potential for irreplaceable loss of resources, then the net result would be to upscale the impact to a high significance) (Table 7).

Table 7: Final environmental significance rating.

Environmental Significance Rating	
Value	Description
< -10	Low Negative (i.e. where this impact would not have a direct influence on the decision to develop in the area)
≥ -10 and < -20	Medium Negative (i.e. where the impact could influence the decision to develop in the area)
≥ -20	High Negative (i.e. where the impact must have an influence on the decision process to develop in the area)
< 10	Low Positive (i.e. where this impact would not have a direct influence on the decision to develop in the area)
≥ 10 and < 20	Medium Positive (i.e. where the impact could influence the decision to develop in the area)
≥ 20	High Positive (i.e. where the impact must have an influence on the decision process to develop in the area)

Contribution of specialist reports
Describe how specialist reports, if required, will be taken into consideration and inform the impact identification, assessment and remediation process.

Specialist studies will be commissioned to address the key issues that require further investigation, namely impacts on the following environmental aspects:

- Noise
- Traffic
- Visual
- Heritage
- Air quality
- Economic
- Financial provision
- Palaeontology (desktop)
- Aquatics and wetland biodiversity
- Geohydrology and waste classification
- Soils, land capability and agricultural potential
- Hydrology including flood lines and buffer zone calculations

	<p>Specialist studies will be conducted in line with the requirements listed in Appendix 6 of the NEMA 2014 EIA Regulation (as amended).</p> <p>The specialist studies will involve the gathering of data relevant to identifying and assessing environmental impacts that may occur as a result of the proposed project. These impacts will be assessed according to pre-defined rating scales. Specialists will also recommend appropriate mitigation/control or optimisation measures to minimise potential negative impacts or enhance potential benefits, respectively.</p>
<p>Determination of impact management objectives and outcomes. Describe how impact management objectives will be determined for each activity to address the potential impact at source, and how the impact management outcomes will be aligned with standards.</p>	<p>The objectives of the impact management measures shall be to firstly anticipate and avoid risks and impacts. This shall be accomplished through the adoption of a risk and impact assessment process which aims to identify all relevant environmental and social risks and receptors that are likely to be affected by such risks and impacts, including the issues identified by I&APs during the consultation process. The impact and risk identification process shall take into consideration each activity and its associated potential impacts.</p> <p>The EMPR developed for the project shall include mechanisms whereby social and environmental risk and impacts shall be avoided and mitigated. The objectives of this environmental management framework shall be:</p> <ul style="list-style-type: none"> • To anticipate potential risks and impacts associated with each activity pre-emptively through the implementation of risk assessment techniques and early warning systems such as environmental monitoring and inspections • To develop and implement preventative measures to ensure known risks and impacts are addressed at source wherever possible (e.g. spill prevention procedures) • To implement detailed management measures to ensure that where avoidance of impacts is not possible, mitigation measures are in place to minimise impacts to workers, affected communities, and the environment • To provide a framework for adaptive environmental management within the EMP whereby impacts from unplanned events or incidents caused by the project may be effectively controlled to minimise impacts to workers, affected communities, and the environment <p>The management and mitigation measures shall be developed in accordance with applicable standards and guidelines, which shall include, but is not limited to:</p> <ul style="list-style-type: none"> • Legislated standards (e.g. air quality guidelines and standards) • South African National Standards (SANS) (e.g. SANS water

	<p>quality standards);</p> <ul style="list-style-type: none"> • Where applicable, international standards and guidelines (e.g. IFC Performance Standards, Equator Principles, Good International Industry Practise) • Applicable national and regional frameworks (e.g. Bioregional Plans; Spatial Development Frameworks, National Protected Area Expansion Strategy Focus Areas, Environmental Management Frameworks etc.) • Applicable guidelines developed by authorities (e.g. DMR guidelines, NEMA EIA guidelines) • Other applicable guidelines (e.g. Mining and Biodiversity Guidelines) <p>In order to ensure that the impact management outcomes can be monitored and performance evaluated, performance targets and indicators shall be developed where appropriate. Compliance and alignment with the prescribed standards shall be measures against the defined Performance Targets and Indicators through the implementation of a system of inspections and compliance monitoring as defined in the EMPR.</p>
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8. OTHER AUTHORISATIONS REQUIRED

LEGISLATION	Mark with an X where applicable			
	AUTHORISATION REQUIRED		APPLICATION SUBMITTED	
	YES	NO	YES	NO
SEMA s				
National Environmental Management: Air Quality Act		X		X
National Environmental Management: Biodiversity Act		X		X
National Environmental Management: Integrated Coastal Management Act		X		X
National Environmental Management: Protected Areas Act		X		X
National Environmental Management: Waste Act	X		X	
National legislation				
Mineral Petroleum Development Resources Act	X		X	
National Water Act	X		X	
National Heritage Resources Act		X		X
Others: Please specify		X		X

Please provide proof of submission of applications in **Appendix 5**.

Please note that the applicability of the following Acts listed below will be confirmed during the environmental process:

- National Environmental Management: Biodiversity Act (particularly relating to permit applications for the removal/relocation of potential protected species identified on site)
- National Heritage Resources Act (particularly relating to potential heritage features and archaeological finds)

Should it be found that any listed activities within these Acts will be triggered, the necessary permit and license application process will be followed in accordance with the regulations.

9. DRAFT EMPR

For consultation purposes, provide a high level approach to the management of the potential environmental impacts of each of the activities applied for.

ACTIVITIES (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route (etc) E.g. for mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	PHASE OF OPERATION IN WHICH ACTIVITY WILL TAKE PLACE (Planning and design, Pre-Construction' Construction, Operation, Rehabilitation, Closure, Post closure)	SIZE AND SCALE OF DISTURBANCE (volumes, tonnages and hectares or m ²)	TYPICAL MITIGATION MEASURES (Eg, storm water control, dust control, noise control, access control, rehabilitation etc,)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
Site establishment – clearing of vegetation for mining and surface infrastructure	<ul style="list-style-type: none"> • Construction • Operation 	Overall surface area of 363.5 ha	<ul style="list-style-type: none"> • Access control • Soil conservation management • Waste management • Storm water management • Avoidance of heritage resources • Maintain ecology and wetland/watercourse buffers • Noise control and monitoring • Dust control and monitoring • Road management • Implementation of socio-economic policies and procedures • Implementation of the emergency response 	The typical mitigation measures recommended will comply with all prescribed environmental management standards and practices These standards include the following: Dust control - National Ambient Air Quality Standard GNR No. 263 (24 December 2009);

ACTIVITIES (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route (etc) E.g. for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	PHASE OF OPERATION IN WHICH ACTIVITY WILL TAKE PLACE (Planning and design, Pre-Construction' Construction, Operation, Rehabilitation, Closure, Post closure)	SIZE AND SCALE OF DISTURBANCE (volumes, tonnages and hectares or m ²)	TYPICAL MITIGATION MEASURES (Eg, storm water control, dust control, noise control, access control, rehabilitation etc,)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
			procedure <ul style="list-style-type: none"> • Rollover rehabilitation (where possible) • Closure planning to incorporate measures to achieve future land use plans 	National Ambient Air Quality Standard GNR No. 486 (29 June 2012); National Ambient Air Quality Standards GNR No. 827 (1 November 2013)
Opencast mining	<ul style="list-style-type: none"> • Construction • Operation • Decommissioning • Rehabilitation • Closure • Post closure 	350 ha	<ul style="list-style-type: none"> • Access control • Soil conservation management • Waste management • Storm water management • Avoidance of heritage resources • Maintain ecology and wetland/watercourse buffers • Biodiversity management and monitoring • Groundwater control and monitoring • Surface water control and monitoring • Noise control and monitoring 	Noise control – SANS10328:2008 Water quality – South African Water Quality Guidelines, Department of Water Affairs and Forestry, Second Edition

ACTIVITIES (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route (etc) E.g. for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	PHASE OF OPERATION IN WHICH ACTIVITY WILL TAKE PLACE (Planning and design, Pre-Construction' Construction, Operation, Rehabilitation, Closure, Post closure)	SIZE AND SCALE OF DISTURBANCE (volumes, tonnages and hectares or m ²)	TYPICAL MITIGATION MEASURES (Eg, storm water control, dust control, noise control, access control, rehabilitation etc,)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
			<ul style="list-style-type: none"> • Dust control and monitoring • Visual control • Road management • Implementation of socio-economic policies and procedures • Implementation of the emergency response procedure • Rollover rehabilitation • Closure planning to incorporate measures to achieve future land use plans 	1996 Waste - Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste, Department of Water Affairs and Forestry Republic of South Africa, Second Edition 1998
Establishment of process plants and supporting infrastructure: <ul style="list-style-type: none"> • Topsoil and run-of mine stockpiles • Haul roads • Workshops • Conveyors 	<ul style="list-style-type: none"> • Construction • Operation • Decommissioning • Rehabilitation • Closure 	13.5 ha	<ul style="list-style-type: none"> • Access control • Soil conservation management • Waste management • Storm water management • Avoidance of heritage resources 	

ACTIVITIES (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route (etc) E.g. for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	PHASE OF OPERATION IN WHICH ACTIVITY WILL TAKE PLACE (Planning and design, Pre-Construction' Construction, Operation, Rehabilitation, Closure, Post closure)	SIZE AND SCALE OF DISTURBANCE (volumes, tonnages and hectares or m ²)	TYPICAL MITIGATION MEASURES (Eg, storm water control, dust control, noise control, access control, rehabilitation etc,)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
<ul style="list-style-type: none"> • Change houses • Portable chemical ablution facilities • Fencing • Security gate • Stockpiling and berms • Change house • Administrative block (including mine offices) 	<ul style="list-style-type: none"> • Post closure 		<ul style="list-style-type: none"> • Maintain ecology and wetland/watercourse buffers • Biodiversity management and monitoring • Groundwater control and monitoring • Surface water control and monitoring • Noise control and monitoring • Dust control and monitoring • Visual control • Road management • Implementation of socio-economic policies and procedures • Implementation of the emergency response procedure • Closure planning to incorporate measures to achieve future land use plans 	

ACTIVITIES (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route (etc) E.g. for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	PHASE OF OPERATION IN WHICH ACTIVITY WILL TAKE PLACE (Planning and design, Pre-Construction' Construction, Operation, Rehabilitation, Closure, Post closure)	SIZE AND SCALE OF DISTURBANCE (volumes, tonnages and hectares or m ²)	TYPICAL MITIGATION MEASURES (Eg, storm water control, dust control, noise control, access control, rehabilitation etc,)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
Topsoil and run-of mine stockpiles	<ul style="list-style-type: none"> • Planning • Construction • Operation • Decommissioning 	Contained in the 13.5 ha	<ul style="list-style-type: none"> • Access control • Soil conservation management • Waste management • Storm water management • Avoidance of heritage resources • Maintain ecology and wetland/watercourse buffers • Noise control and monitoring • Dust control and monitoring • Visual control and monitoring • Road management • Implementation of socio-economic policies and procedures • Implementation of the emergency response procedure 	

ACTIVITIES (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route (etc) E.g. for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	PHASE OF OPERATION IN WHICH ACTIVITY WILL TAKE PLACE (Planning and design, Pre-Construction' Construction, Operation, Rehabilitation, Closure, Post closure)	SIZE AND SCALE OF DISTURBANCE (volumes, tonnages and hectares or m ²)	TYPICAL MITIGATION MEASURES (Eg, storm water control, dust control, noise control, access control, rehabilitation etc,)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
			<ul style="list-style-type: none"> • Closure planning to incorporate measures to achieve future land use plans 	
Establishment of access and haul roads	<ul style="list-style-type: none"> • Construction • Operational • Decommissioning • Closure 	Contained in the 13.5 ha	<ul style="list-style-type: none"> • Access control • Soil conservation management • Waste management • Storm water management • Avoidance of heritage resources • Maintain ecology and wetland/watercourse buffers • Biodiversity management and monitoring • Groundwater control and monitoring • Surface water control and monitoring • Noise control and monitoring • Dust control and monitoring • Visual control and monitoring 	

ACTIVITIES (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route (etc) E.g. for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	PHASE OF OPERATION IN WHICH ACTIVITY WILL TAKE PLACE (Planning and design, Pre-Construction' Construction, Operation, Rehabilitation, Closure, Post closure)	SIZE AND SCALE OF DISTURBANCE (volumes, tonnages and hectares or m ²)	TYPICAL MITIGATION MEASURES (Eg, storm water control, dust control, noise control, access control, rehabilitation etc,)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
			<ul style="list-style-type: none"> • Road management • Implementation of socio-economic policies and procedures • Implementation of the emergency response procedure • Closure planning to incorporate measures to achieve future land use plans 	
Establishment of conveyors	<ul style="list-style-type: none"> • Construction • Operation • Decommissioning • Closure 	Contained in the 13.5 ha	<ul style="list-style-type: none"> • Access control • Soil conservation management • Waste management • Storm water management • Avoidance of heritage resources • Maintain ecology and wetland/watercourse buffers • Biodiversity management and monitoring • Groundwater control and monitoring 	

ACTIVITIES (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route (etc) E.g. for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	PHASE OF OPERATION IN WHICH ACTIVITY WILL TAKE PLACE (Planning and design, Pre-Construction' Construction, Operation, Rehabilitation, Closure, Post closure)	SIZE AND SCALE OF DISTURBANCE (volumes, tonnages and hectares or m ²)	TYPICAL MITIGATION MEASURES (Eg, storm water control, dust control, noise control, access control, rehabilitation etc,)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
			<ul style="list-style-type: none"> • Surface water control and monitoring • Noise control and monitoring • Dust control and monitoring • Visual control and monitoring • Road management • Implementation of socio-economic policies and procedures • Implementation of the emergency response procedure • Closure planning to incorporate measures to achieve future land use plans 	
Storm water control water storage facilities: <ul style="list-style-type: none"> • Water pump station • Water pipeline • Raw water dams • Potable water storage 	<ul style="list-style-type: none"> • Construction • Operation • Decommissioning • Closure 	Contained in the 13.5 ha	<ul style="list-style-type: none"> • Site access • Topsoil management • Noise control and monitoring • Dust control and monitoring 	

ACTIVITIES (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route (etc) E.g. for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	PHASE OF OPERATION IN WHICH ACTIVITY WILL TAKE PLACE (Planning and design, Pre-Construction' Construction, Operation, Rehabilitation, Closure, Post closure)	SIZE AND SCALE OF DISTURBANCE (volumes, tonnages and hectares or m ²)	TYPICAL MITIGATION MEASURES (Eg, storm water control, dust control, noise control, access control, rehabilitation etc,)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
<ul style="list-style-type: none"> • Slimes dams (Settling ponds) • Pollution control dam • Drains and berms 			<ul style="list-style-type: none"> • Visual control and monitoring • Avoidance of heritage resources • Storm water management • Waste management • Surface and ground water management • Surface and ground water monitoring • Closure planning to incorporate measures to achieve future land use plans 	
Establishment of fuel storage facility	<ul style="list-style-type: none"> • Construction • Operation • Decommissioning • Closure 	Contained in the 13.5 ha	<ul style="list-style-type: none"> • Access control • Soil conservation management • Waste management • Storm water management • Avoidance of heritage resources • Maintain ecology and wetland/watercourse buffers 	

ACTIVITIES (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route (etc) E.g. for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	PHASE OF OPERATION IN WHICH ACTIVITY WILL TAKE PLACE (Planning and design, Pre-Construction' Construction, Operation, Rehabilitation, Closure, Post closure)	SIZE AND SCALE OF DISTURBANCE (volumes, tonnages and hectares or m ²)	TYPICAL MITIGATION MEASURES (Eg, storm water control, dust control, noise control, access control, rehabilitation etc,)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
			<ul style="list-style-type: none"> • Biodiversity management and monitoring • Groundwater control and monitoring • Surface water control and monitoring • Noise control and monitoring • Dust control and monitoring • Visual control • Road management • Implementation of socio-economic policies and procedures • Implementation of the emergency response procedure • Closure planning to incorporate measures to achieve future land use plans 	
Establishment of waste yards	<ul style="list-style-type: none"> • Construction • Operation 	Contained in the 13.5 ha	<ul style="list-style-type: none"> • Access control • Soil conservation management 	

ACTIVITIES (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route (etc) E.g. for mining, - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	PHASE OF OPERATION IN WHICH ACTIVITY WILL TAKE PLACE (Planning and design, Pre-Construction' Construction, Operation, Rehabilitation, Closure, Post closure)	SIZE AND SCALE OF DISTURBANCE (volumes, tonnages and hectares or m ²)	TYPICAL MITIGATION MEASURES (Eg, storm water control, dust control, noise control, access control, rehabilitation etc,)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
	<ul style="list-style-type: none"> • Decommissioning • Closure 		<ul style="list-style-type: none"> • Waste management • Avoidance of heritage resources • Maintain ecology and wetland/watercourse buffers • Air quality control and monitoring • Visual control • Closure planning to incorporate measures to achieve future land use plans 	

10. CLOSURE PLAN

In the space provided under each heading below, please provide a high level description of the plan for closure and the information that will be provided in the draft EMPR accompanying draft basic assessment report or environmental impact reports going forward.

Baseline environment

Describe how the baseline environment will be determined with the input of interested and affected parties and due cognisance of the current land uses and or existing biophysical environment

The baseline environment will be assessed in two phases namely:

- Phase 1: Scoping & Sensitivity Mapping
- Phase 2: Integrated Environmental Management Programme (IEMPR)

Phase 1: Scoping and Sensitivity Mapping

During the Scoping Phase of the project, a Sensitivity Mapping exercise will be undertaken. This will require a site visit by the required specialists (as detailed above under Section 7) as well as the EAP to familiarise themselves with the proposed application area and broadly determine the existing status quo of the receiving environment, in relation to their chosen disciplines. On completion of the site visit and baseline data collection, the specialists will utilise the obtained information and other available desktop and spatial information to determine site specific sensitivities and constraints. These sensitivities and constraints will then be utilised by the Applicant as well as the design and layout team to identify suitable locations and layouts for the mining operations and associated infrastructure in an attempt to reduce the footprint and impact of the proposed development.

It is crucial to note that the Sensitivity Mapping is to be utilised as a first level mechanism to provide guidance (where viable) with regard to design and layout and identify operational alternatives for further assessment. In addition, the mapping exercise allows the identification of potential fatal flaws.

On completion of the Sensitivity Mapping and identification of the preferred development alternatives, Shango Solutions will begin compilation of the Integrated Scoping Report.

The Integrated Scoping Report will conform to the requirements of the previously mentioned Acts and include the following:

- A description of the receiving environment
- Identification and description of anticipated impacts
- Identify and describe reasonable land use or development alternatives
- A description of the procedure to plan and develop the production operation
- A description of the process used to engage I&APs and

other stakeholders

- A description of further investigations required in the EIA

The Integrated Scoping Report will be accompanied by the Specialist Scoping Investigations and as well as a consolidated Sensitivity Map. Review of the report by I&APs and submission of the report to the authorities will conclude Phase 1.

Phase 2: Integrated Environmental Management Programme (IEMPR):

During the EIA phase of the project, a more detailed investigation will be undertaken for the likely disturbance footprint of the proposed mining area. This will require an additional site visit by all the required specialists as well as the EAP to undertake a detailed assessment of the proposed project. On completion of the EIA level assessments, Shango Solutions will begin compilation of the IEMPR.

The IEMPR will include the following information:

- A detailed description of the receiving environment
- A description of the Public Participation Process methodology
- A record of the findings of the Public Participation Process
- An Environmental Impact Assessment (EIA) during all project phases
- Closure and Rehabilitation Plan
- Calculation of the Financial Provision
- A detailed description of the need and desirability of the proposed activity including advantages and disadvantages that the activity will have to the environment and community
- A description of the methodology used in determining significance of identified impacts
- A description and comparative assessment of all alternatives identified
- A summary of the findings and recommendations of specialist studies
- A description of all identified impacts and an assessment of the significance of each impact before and after implementation of proposed mitigation measures
- A description of assumptions, uncertainties and gaps in knowledge
- A recommendation as to whether the activity should be

	<p>authorised and under what conditions</p> <ul style="list-style-type: none"> • An Environmental Impact Statement including key findings • An Environmental Management Programme • Copies of all specialist studies carried out <p>Each identified impact will be assessed for significance by investigating and ranking the nature, duration, extent, magnitude and probability of each impact. In addition to this the reversibility and the potential for irreplaceable loss of resources will also be assessed. In accordance with the requirements of the EIA regulations an Environmental Management Programme (EMPR) will also be prepared.</p> <p>Following submission of the IEMPR, specialist studies and EMPR to the registered I&APs for review and comment, the final submission will be made to the DMR.</p> <p>Public Participation Process</p> <p>The integrated Public Participation Process will be robust and continue to engage I&APs throughout all phases of the project. As a result of the public notifications, a register will be opened and maintained which will record all contact details of persons whom have submitted written comments or responded to the notification and who have requested that they be registered as I&APs. All registered I&APs will be informed of the required process of involvement as defined by the NEMA 2014 EIA Regulations (as amended). All objections and representations received from I&APs will be collected and considered in this application. Responses will be prepared and distributed to those I&APs who submitted comments and/or objections. These comments/objections and responses will be recorded in an Issues and Responses Report for inclusion into the Scoping and Environmental Impact Reports. In addition, the registered I&APs will be given an opportunity to comment on all reports prepared to be submitted to the DMR.</p>
<p>Closure objectives</p> <p>Describe the closure objectives and the extent to which they will be aligned to the baseline environment</p>	<p>The EMPR shall include a rehabilitation plan. The plan shall outline the closure objectives which are aimed at re-instating the landform, land use and vegetation units to the same as before mining operations take place unless a specific, reasonable alternate land use is requested by the landowner.</p> <p>As such, the intended end use for the disturbed mining areas and the closure objectives will be defined in consultation with the relevant landowner. Proof of such consultation will be submitted together with the Application for Closure Certificate. The overall</p>

	<p>aim of the rehabilitation plan is to rehabilitate the environment to a condition as close as possible to that which existed prior to mining.</p> <p>This shall be achieved with a number of specific objectives:</p> <ul style="list-style-type: none"> • Return impacted land to a sustainable land use in agreement with the current landowner or user • Remove mining infrastructure that cannot be used by a landowner or a third party. Where buildings can be used by a third party, arrangements must be made to ensure their long-term sustainable use • Ensure that there is no contamination of water sources and where this is unavoidable, to ensure that the water is contained or treated if it does not meet statutory water quality requirements • Follow a process of closure that is progressive and integrated into the short and long-term plans and that will assess the closure impacts proactively at regular intervals throughout project life • Implement progressive rehabilitation measures wherever possible • Make a safe and stable environment for both humans and animals • Prevent soil and surface/groundwater contamination by managing water on site • Comply with national closure and rehabilitation regulatory requirements • Maintain and monitor all rehabilitated areas following re-vegetation for the prescribed period. When monitoring indicates that the objectives have been met, an application for closure will be lodged with the DMR.
<p>Rehabilitation Plan</p> <p>Describe the scale and aerial extent of the prospecting or mining listed activities to be authorised, including the anticipated prospecting or mining area at the time of closure, and confirm that a site rehabilitation plan drawn to a suitable scale will be provided in the draft EMPR to be submitted together with the draft EIR or Basic Assessment Report as the case may be.</p>	<p>Closure will include rehabilitation. Rehabilitation can be divided into two stages, namely (i) rollover rehabilitation and (ii) final rehabilitation. Rollover rehabilitation must be carried out along with the operations, and will lower the final liability that the mine will undertake at the time of closure. This rollover rehabilitation will be carried out within the context of the EMPR. Final rehabilitation will be carried out during closure phase of the mining operations. This final rehabilitation will be carried out in terms of the closure plan. The closure and rehabilitation plan should be modified and adapted as the project continues and more knowledge is generated about the environment and the impacts of the project.</p> <p>A rehabilitation plan will be drawn to a suitable scale and</p>

	provided in the Basic Assessment Report and Environmental Management Programme.
<p>Rehabilitation Cost</p> <p>Describe how the rehabilitation cost will be determined and provide a preliminary estimate thereof</p>	<p>Section 24P in the NEMA as amended, provides that an applicant or holder of a Mining Right must make Financial Provision for rehabilitation of negative environmental impacts. In addition to Section 24(P), the Regulations pertaining to the Financial Provision for prospecting, exploration, mining or production operations were promulgated on the 20th November 2015 (GNR 1147). Regulation 6 of the GNR 1147 requires an applicant to determine the Financial Provision through a detailed itemisation of all activities and costs, calculated based on the actual cost of implementation of the measures required for:</p> <ul style="list-style-type: none"> • Annual rehabilitation as reflected in the annual rehabilitation plan (ARP) • Final rehabilitation, decommissioning and closure as reflected in the final closure plan (RCP) • The remediation of residual environmental impacts including but not limited to the pumping and treatment of polluted or extraneous water, as reflected in an environmental risk report (ERR) <p>A specialist will be appointed to determine the Financial Provision. The quantum for Financial Provision will be calculated using the DMR's preferred methodology and guideline document titled "Guideline Document for the Evaluation of the Quantum of Closure-Related Financial Provision Provided by a Mine (2005)" and the Master Rates of 2018. The model will calculate the cost of demolishing, removing and rehabilitating each component of the mine's infrastructure which may include (but is not limited to):</p> <ul style="list-style-type: none"> • Demolition of all surface infrastructure including steel, brick and concrete structures • Rehabilitation of yards and roads • Reclamation of mineralised mine waste deposits (e.g. discard and waste rock) • Removal and rehabilitation of process solution facilities (e.g. heap leach pads, evaporation ponds) • Generalised rehabilitation and vegetation management strategies • Long term maintenance and monitoring costs <p>The Financial Provision will be subject to annual review. Furthermore, the Financial Provision will also be based on implementation of the management measures to be included in the Environmental Management Programme and revised accordingly.</p>

Decommissioning

Considering that rehabilitation must take place upon cessation of an activity, describe when each of activities applied for will be rehabilitated in terms of either the cessation of the individual activity or the cessation of the overall prospecting/exploration or mining/production activity.

Once mining has been completed, all areas disturbed by mining activities will be rehabilitated. This will be undertaken in accordance with the rehabilitation and closure plan to be developed during the environmental process.

It is noted that an application for Environmental Authorisation must be submitted in accordance with Activity 22 of GN 327:

The decommissioning of any activity requiring –

- i. a closure certificate in terms of Section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) or
- ii. A prospecting right, mining permit, production right or exploration right, where the throughput of the activity has reduced by 90% or more over a period of 5 years excluding where the competent authority has in writing agreed that such reduction in throughput does not constitute closure.

APPENDIX 1

DECLARATION OF INDEPENDENCE AND CURRICULUM VITAE (CV) OF THE EAP INDICATING EXPERIENCE

DECLARATION OF THE EAP

I, Nangamso Zizo Siwendu, declare that –

General declaration:

- I act as the independent environmental practitioner in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity
- I will comply with the Act, Regulations and all other applicable legislation
- I will take into account, to the extent possible, the matters listed in regulation 8 of the Regulations when preparing the application and any report relating to the application
- I have no, and will not engage in, conflicting interests in the undertaking of the activity
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application
- I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report
- I will keep a register of all interested and affected parties that participated in a public participation process
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
- All the particulars furnished by me in this form are true and correct
- I will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations
- I realise that a false declaration is an offence in terms of Regulation 71 of the Regulations and is punishable in terms of section 24F of the Act

Disclosure of Vested Interest (delete whichever is not applicable)

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Regulations;
- ~~I have a vested interest in the proposed activity proceeding, such vested interest being:~~

[Handwritten Signature]

Signature of the Environmental Assessment Practitioner:

Shango Solutions

Name of company:

20 August 2018

Date:

I certify that the above statement was taken by me and that the deponent has acknowledged that he/she knows and understands the contents thereof. This statement was sworn (or affirmed) before me and the deponent's signature/mark/thumb-print was placed thereon in my presence.

At Douglasdale on 20 2018 at 18:25

[Signature]
(Signature) COMMISSIONER OF OATHS

Monalisa
FULL FIRST NAMES AND SURNAME IN BLOCK LETTERS

111 Poplar Street
BUSINESS ADDRESS (STREET ADDRESS)

[Signature]
RANK [Signature] SA POLICE SERVICE



CURRICULUM VITAE OF THE EAP



CURRICULUM VITAE

NANGAMSO ZIZO SIWENDU

PERSONAL DATA

Address: Shango Solutions
H.H.K. House, Cnr Ethel Road and Ruth Crescent
Northcliff, 2195

Telephone: +27 (0)11 678 6504 (work)
+27 (0)72 669 6250

E-mail: zizo@shango.co.za

Fax: +27 (0)11 678 9731

Place of birth: Butterworth, Eastern Cape, South Africa

Marital Status: Single

EDUCATION

2002: Matriculated
Victoria Girls' High School, Grahamstown

2003-2006: BA (Geography and Environmental Science)

2008-2009: B. Sc. (Hons) Environmental Management



COURSES AND WORKSHOPS ATTENDED

- 2017: Certificate in Communications and Presentation Skills, Gauteng
- 2017: Certificate in Advanced Report Writing, Gauteng
- 2018: Department of Mineral Resources NEMA Environmental Authorisation Application Process Workshop, Free State

EMPLOYMENT HISTORY

- October 2016 – Present Shango Solutions
Environmental Manager
- November 2010 - October 2016: Environmental Impact Management Services (Pty) Ltd
Environmental Consultant

TECHNICAL REPORTS

Compliance and Enforcement Strategy

- Development of the City of Johannesburg Waste By-Laws Compliance and Enforcement Strategy, Gauteng Province, 2015

Public Involvement Processes

- Public Participation Process for Mashala Coal EIA, Waste Management and Water Use License, Mpumalanga Province, 2013
- Public Participation for PHBagale Mining Right (re-submission), Gauteng Province, 2013
- Public Participation Process for Umsinde Wind Energy Facility and associated Grid Connection EIA, Western Cape and Northern Cape Provinces, 2014
- Public Participation Process for Komsberg Wind Energy Facility and associated Grid Connection EIA, Western Cape and Northern Cape Provinces, 2015



Environmental Auditing

- Development and Implementation of the ISO 14000 Environmental Management System For Eskom Primary Energy Division, Gauteng Province, 2010
- Eskom Medupi Power Station Bi-Annual Environmental Compliance Audits, Limpopo Province, 2011 – 2012
- Environmental Audit Reports and Financial Provision Audit Reports for White Rivers Exploration Prospecting Tenements, 2016 - 2018
- Environmental Audit Report Financial Audit Report For Mafuri Mining Construction (Pty) Ltd for the Schiel Alkaline Complex Prospecting Right, 2017
- Environmental Audit Report and Financial Audit Report for West Wits Mining (Pty) Ltd for the Prospecting Right GP 10035 PR, 2017 and 2018

Basic Assessment Processes

- Basic Assessment for African Exploration, Mining And Finance Corporation (Pty) Ltd Prospecting Right, KwaZulu-Natal, 2011
- Basic Assessment For Eros Vuyani Towers Within 32m Of A Watercourse, Kwazulu-Natal, 2012
- Basic Assessments for Three 20ha Sites Of 15mw Pv Developments, North-West, 2012
- Basic Assessment for the First National Bank Datacentre Upgrade In Randburg, Gauteng, 2015
- Basic Assessment for Atoll Metal Recovery (Pty) Ltd Prospecting Right, Gauteng, 2016
- Basic Assessment for Lothlorien Waste Paper Recycling Storage Facility, Gauteng, 2016
- Basic Assessment for Western Margin Gap West Prospecting Right, Free State, 2018
- Basic Assessment for Ventersburg Consolidated Prospecting Right, Free State, 2018
- Basic Assessment for Nkunzana Prospecting Right, KwaZulu-Natal, 2018
- Basic Assessment for Evander East 2 Prospecting Right, Mpumalanga, 2018
- Basic Assessment for Evander East 3 Prospecting g Right, Mpumalanga, 2018
- Basic Assessment for Kroonstad South Prospecting Right, Frees State, 2018
- Basic Assessment for Kroonstad North Prospecting Right, Free State, 2018
- Basic Assessment for Vredefort West Ext. Prospecting Right, 2018
- Basic Assessment for Palmietfontein Mining Permit, North West, 2018

COMPANY PROFILE



Company Profile

Shango Solutions (hereafter referred to as Shango), registered as Dunrose Trading 186 (Pty) Ltd and established in April 2004, provides a diverse range of services to the mineral and mining sectors. Currently, 27 permanent multi-disciplinary employees and about 24 nationally and internationally recognised affiliates are employed. The company has a track record of successful project management and leadership, including complex multi-disciplinary assignments.

Consultancy activities straddle the entire mining value chain from exploration to beneficiation (Figure 1), thereby providing the client with complete solutions. Activities are performed in multi-disciplinary teams. Areas of specialisation include target generation, exploration, geodatabase compilation and management, geological modelling, resource estimation, mineral asset valuations, due diligences, desktop project reviews and technical reporting. The company services the majority of the major mining houses, but also junior exploration companies, mineral resource investment firms, government institutions and departments and the artisanal and small-scale mining sectors. Shango Solutions collaborates closely with local and international experts in the mining and corporate industries. This, in conjunction with our affiliations with academic and parastatal institutions, ensures provision of the most innovative and appropriate solutions to clients.

Shango has completed in excess of 400 projects, of which the majority were located in Africa (Appendix 1). The company consequently has extensive ground-based mining related experience throughout Africa, especially southern, eastern and north-west African states. Our extensive knowledge of the African minerals industry has attracted some of the largest names in mineral extraction to our client base. The project portfolio highlights our cross-sectorial approach and capability.

Shango incorporates in excess of 500 years of Africa-based mining and exploration experience. This includes, but is not limited to, gold, platinum, rare earth elements, base metals, uranium, coal, natural gas, ferrochrome, aggregate, heavy mineral sands and diamonds. Over the last decades, we have established comprehensive 2D Geographic Information Systems (GIS) databases throughout Africa, which consider geological and geophysical data, mineral occurrences, defunct and existing mines, infrastructure and mining statistics.

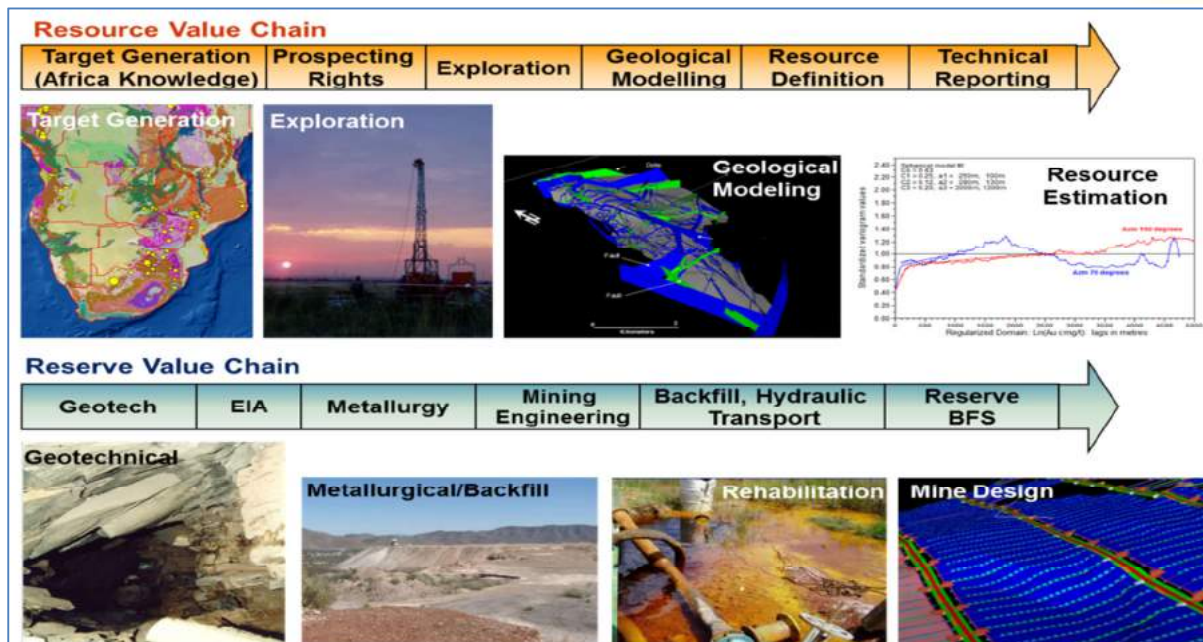


Figure 1: Resource and Reserve Value Chains.

Shango Solutions main attributes are as follows:

- Decades of mining expertise, from surface to deep level
- Established track record
- Management experience
- Aspiration to challenges
- Multi-commodity experience
- Striving towards technical excellence
- Established networks facilitating multi-disciplinary solutions
- Committed to transformation and sustainable development
- Customer focused

Shango has not performed formal marketing for the past eleven years due to technical excellence, relying primarily on word of mouth, our reputation in the industry and a strong network. The company adopts a mean and lean structure with no fulltime finance and human



resources departments. The current directors Dr Jochen Schweitzer (co-founding member) and Rob Handley, together with a very competent management team assist with the running of the company.

Our student mentoring programme focusses on grooming promising students with a long term aim at permanent employment. Graduate students employed at Shango are encouraged to further studies. Shango provides financial support to these students enabling them to complete honours, masters and doctorate degrees. Shango has a strong community upliftment ethos and contributes to a number of charity initiatives such as Humanity at Last.



Appendix 1: Previous Assignments

Region	Project Type	No. of Projects	Countries	Resources	Project Activities	Examples of Clients
South Africa	Mining Geology and Related Activities	91	South Africa	Chrome, Gold, Platinum, Rare Earth Elements	Geological Modelling/Prediction, Reserve Definition, Competent Persons Report, Processing and Backfill Design, Pre-Feasibility and Feasibility Studies, Mine Optimisation, Data Capture and Geodatabase Management, Risk Assessments	Gold1, Harmony, Gold Fields, AngloGold Ashanti, AngloPlatinum, DCM Chrome
	Exploration	80	South Africa	Chrome, Coal, Gold, Manganise, Natural Gas, Base Metals, Platinum Group Metals, Uranium, Rare Earth Elements, Slate, Titanium, Dimension Stone	Target Generation, Exploration Management, Prospecting Right Applications, Geochemical Analyses and Modelling, Data Capture and Geodatabase Management, Geological Modelling, Technical Reporting, Mineral Asset Valuation, Resource Estimation	Gold1, Barrick, BHP Billiton, Rio Tinto, Ivanplats
	Engineering	102	South Africa	Gold, Platinum Group Metals, Chrome, Uranium, Coal, Manganese, Iron Ore, Base Metals, Antimony, Phosphate, Bauxite, Rare Earth Elements	Process and Surface Infrastructure, Pre-Feasibility and Feasibility Studies, Conceptual and Scoping Studies, Mining Cost Estimations, Definition of Labour Plan, Environmental Risk Audits for Mine Closures, Design of Hydropower Systems, In-Mine Water Reticulation and Pumping, Power Reticulation, Surface and Underground Infrastructure, Ventilation Design, Mechanical and Electrical Design and Implementation, Overland Pipeline and Pumpstations, Backfill Design, Risk Assessment, Mine Safety Engineering and Occupational Health Management, Financial Assessments, Plant Audits and Designs, Environmental Audits, Defintion of Mitigation Processes	Aflease, Gold1, AngloGold Ashanti, Harmony, Anglo Platinum, Gold Fields, Burnstone, West Wits, Meteorex, Lonmin, Boynton, African Rainbow Minerals, ABSA Bank
	Environmental	12	South Africa	Natural Water Resources	Dewatering, Water Sampling, Acid Mine Drainage Modelling, Environmental Impact Assessments, Environmental Management Program Reports, Water Monitoring	South African Council for Geosciences, Department of Mineral Resources, Aurecon, Aflease, Gold1



Region	Project Type	No. of Projects	Countries	Resources	Project Activities	Examples of Clients
Africa	Mining Geology and Related Activities	7	Botswana, Congo, Kenya, Mali, Mozambique, Namibia, Tanzania, Zambia, Zimbabwe	Copper, Gold, Gemstones	Backfill Studies and Design, Due Diligence and Auditing, Geological Modelling	Meteorex, Konkola, Indarama Mine
	Exploration	9	Botswana, Congo, Kenya, Mali, Mozambique, Namibia, Tanzania, Zambia, Zimbabwe, Liberia, Several Desktop Studies Considering the Entire African Continent	Coal, Chrome, Copper, Gold, Iron Ore, Platinum, Uranium	Target Generation, Exploration Management, Geochemical Analyses and Modelling, Data Capture and Geodatabase Management, Technical Reporting, Mineral Asset Valuation, Resource Estimation, Geological Modelling, Remote Sensing	Aflease, Atomic Resources, Congo Gold, West African Synergies, Rockridge
	Engineering	67	Democratic Republic of Congo, Zimbabwe, Ghana, Namibia, Tanzania, Botswana, Mozambique, Papua New Guinea, Liberia, Malawi, Mali, Zambia	Gold, Platinum Group Metals, Chrome, Uranium, Coal, Manganese, Iron Ore, Base Metals, Antimony, Phosphate, Bauxite, Rare Earth Elements	Process and Surface Infrastructure, Pre-Feasibility and Feasibility Studies, Conceptual and Scoping Studies, Mining Cost Estimations, Definition of Labour Plan, Environmental Risk Audits for Mine Closures, Design of Hydropower Systems, In-Mine Water Reticulation and Pumping, Power Reticulation, Surface and Underground Infrastructure, Ventilation Design, Mechanical and Electrical Design and Implementation, Overland Pipeline and Pumpstations, Backfill Design, Risk Assessment, Mine Safety Engineering and Occupational Health Management, Financial Assessments, Plant Audits and Designs, Environmental Audits, Definition of Mitigation Processes	DRC Copper, Great Lakes Minerals, Meteorex, Rio Tinto, African Nickle, First Quantum Minerals, Botswana Ash, Golden Star, Barrick, Grafiri/Guinea Bauxite, Mitsui, Investec, Ghana Gold
	Environmental	2	Botswana, Congo, Kenya, Mali, Mozambique, Namibia, Tanzania, Zambia, Zimbabwe	Gold, Natural Water Resources	Shaft Level Monitoring and Water Qualities	Indarama Gold Mine



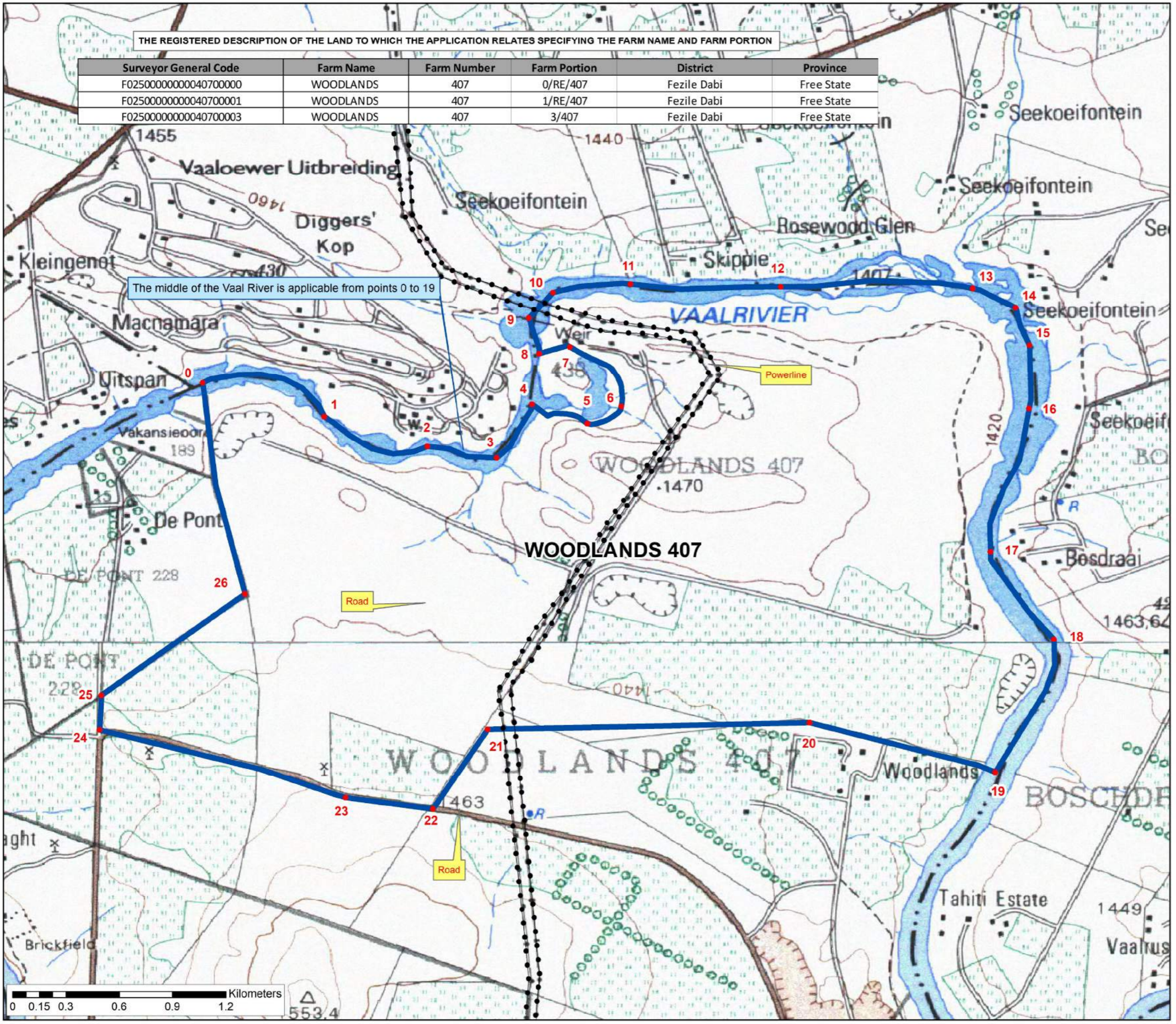
Region	Project Type	No. of Projects	Countries	Resources	Project Activities	Examples of Clients
Non-African Countries	Mining Geology and Related Activities	2	Australia, Mexico	Gold, Iron Ore	Backfill Optimisation, Geological Modelling	BHP Billiton
	Exploration	9	Australia, South America, Central America, North America, Europe	Gold, Iron Ore, Uranium	Target Generation, Exploration Management, Technical Reporting	Aflease, Nullagine Exploration
	Engineering	24	Ukraine, Slovakia, Kazakstan, Tayikastan, Australia, Great Britain, Germany	Gold, Platinum Group Metals, Chrome, Uranium, Coal, Manganese, Iron Ore, Base Metals, Antimony, Phosphate, Bauxite, Rare Earth Elements	Process and Surface Infrastructure, Pre-Feasibility and Feasibility Studies, Conceptual and Scoping Studies, Mining Cost Estimations, Definition of Labour Plan, Environmental Risk Audits for Mine Closures, Design of Hydropower Systems, In-Mine Water Reticulation and Pumping, Power Reticulation, Surface and Underground Infrastructure, Ventilation Design, Mechanical and Electrical Design and Implementation, Overland Pipeline and Pumpstations, Backfill Design, Risk Assessment, Mine Safety Engineering and Occupational Health Management, Financial Assessments, Plant Audits and Designs, Environmental Audits, Defintion of Mitigation Processes	Various Banks, Ferrexpo, KRYSO, Rio Tinto, Barrick, European Union, BHP Billiton
Total Number of Projects		405				

APPENDIX 2
MAPS

LOCALITY MAP (REGULATION 2(2) PLAN)

THE REGISTERED DESCRIPTION OF THE LAND TO WHICH THE APPLICATION RELATES SPECIFYING THE FARM NAME AND FARM PORTION

Surveyor General Code	Farm Name	Farm Number	Farm Portion	District	Province
F0250000000040700000	WOODLANDS	407	0/RE/407	Fezile Dabi	Free State
F0250000000040700001	WOODLANDS	407	1/RE/407	Fezile Dabi	Free State
F0250000000040700003	WOODLANDS	407	3/407	Fezile Dabi	Free State



Plan 2(2)
Goosebay Project
 In the district of Fezile Dabi
 Project Extent: 858.5825Ha
 After 1:50 000 Topo Sheet
 2627 DA & DC
 WGS84/Hartebeeshoek

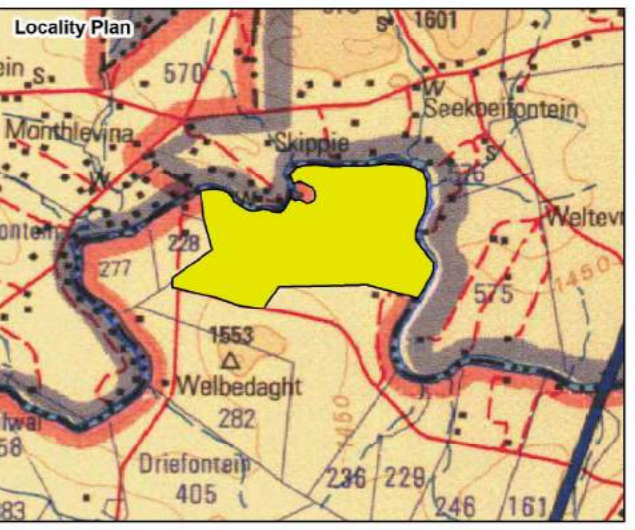
●●● Powerlines
● Prospect Area
□ Parent Farm

Servitudes according to the Title Deeds and SG Diagrams

WGS84 COORDINATES

Points	X	Y
0	27.59245	-26.737431
1	27.59861	-26.739145
2	27.603828	-26.740661
3	27.607333	-26.741231
4	27.609124	-26.73852
5	27.611927	-26.739487
6	27.613653	-26.738627
7	27.611041	-26.735613
8	27.609488	-26.735946
9	27.608964	-26.734147
10	27.610187	-26.73285
11	27.614112	-26.732428
12	27.621722	-26.732555
13	27.631442	-26.732649
14	27.633619	-26.733622
15	27.634319	-26.735518
16	27.634298	-26.738725
17	27.632335	-26.745997
18	27.635551	-26.750432
19	27.632578	-26.757133
20	27.623184	-26.754639
21	27.606884	-26.754978
22	27.604101	-26.75901
23	27.59969	-26.758428
24	27.587227	-26.755007
25	27.587319	-26.753242
26	27.594591	-26.748131

Prepared by:
Shango Solutions
 Applicant's Signature _____
 Date _____



SITE LAYOUT

Legend

Goosebay Canyon Farm

-  Tar road
 -  Vaal River
 -  Goosebay cadastral info
 -  Goosebay dams
 -  Ridges
 -  Riparian zone
- #### Buffer zones
-  100m power line buffer
 -  20m property boundary buffer
 -  100m road buffer
 -  102m wetland buffer (pre-mitigation)

CLIENT:
**GOOSEBAY FARM
(PTY) LTD**

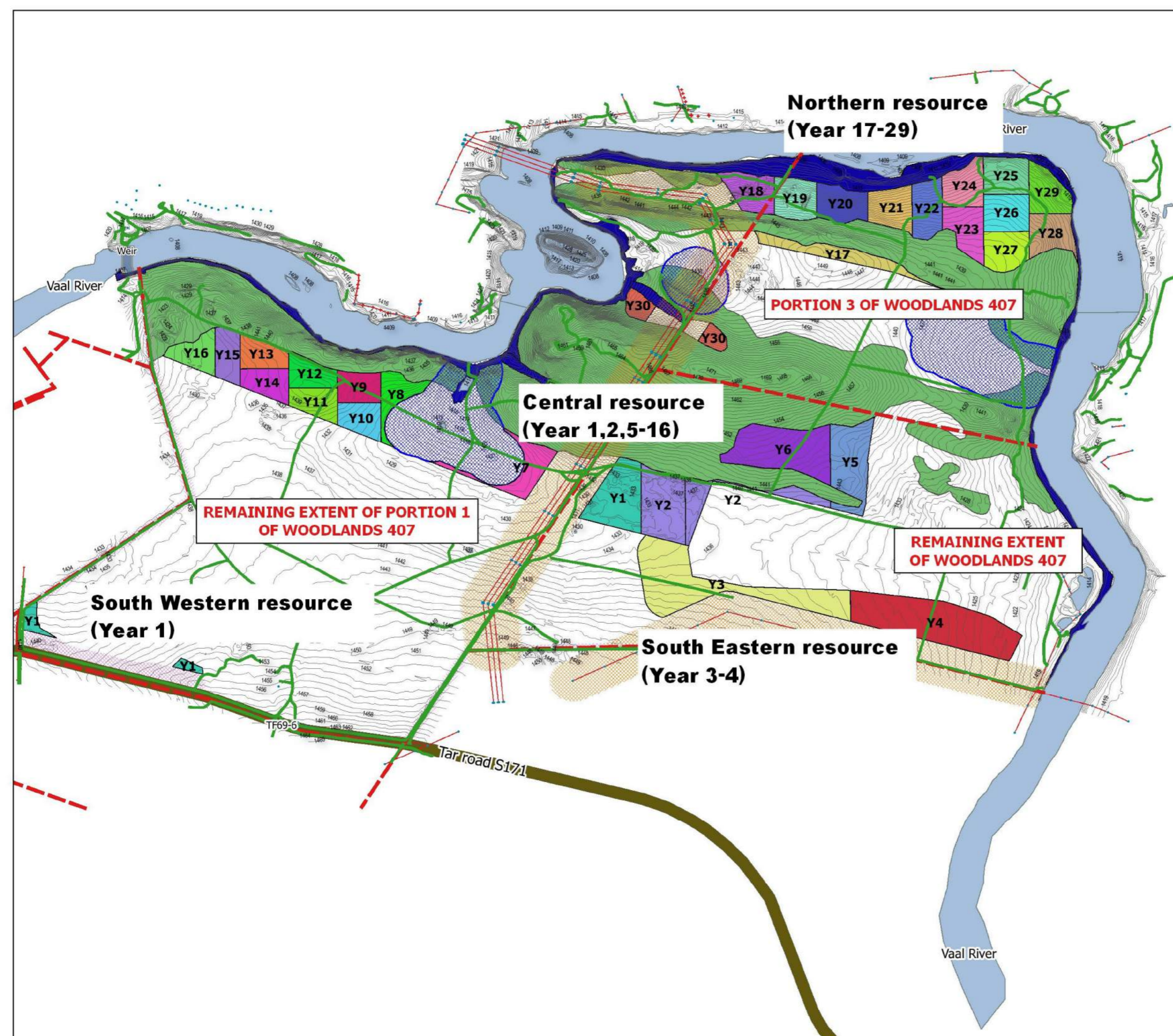
DRAWING TITLE:
Mining Works Program for Mining Right
Application
DESCRIPTION:
Goosebay Farm 30 Year mining plan for
aggregate

DATE: 2018-08-22 SCALE A3: 1:12 000

DRAWING NO: 1 of 1 DRAWING VERSION: 11

DRAWING PREPARED BY:
MR. MADER VAN DEN BERG
ML(PROF) IN LANDSCAPE
ARCHITECTURE

CONTACT DETAILS:
P.O.BOX 14956
ZUURFONTEIN
1912
TEL: +0776 169 1435
FAX: 086 520 4677
EMAIL: mader@skets.co.za



Legend

Goosebay Canyon Farm

-  Tar road
-  Vaal River
-  Goosebay cadastral info
-  Goosebay dams
-  Gravel pit
-  Ridges
-  Riparian zone
- Buffer zones**
-  100m power line buffer
-  20m property boundary buffer
-  100m road buffer
-  102m wetland buffer (pre-mitigation)

CLIENT:
**GOOSEBAY FARM
(PTY) LTD**

DRAWING TITLE:
Mining Works Program for Mining Right
Application
DESCRIPTION:
Goosebay Farm 30 Year mining plan for main,
east and north pit (Sand)

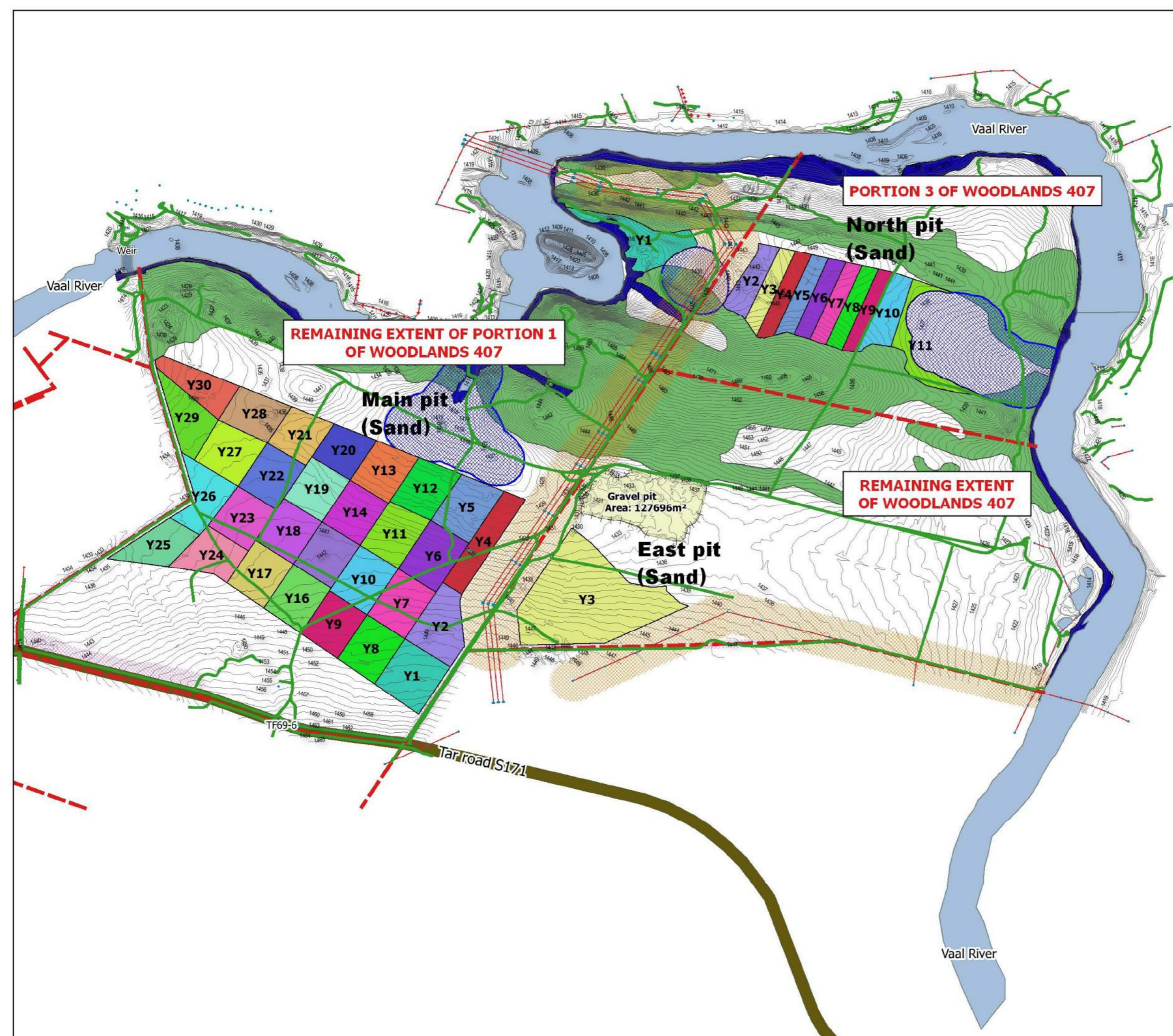
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DRAWING NO: 1 of 1 DRAWING VERSION: 11

DRAWING PREPARED BY:
MR. MADER VAN DEN BERG
ML(PROF) IN LANDSCAPE
ARCHITECTURE

CONTACT DETAILS:
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TEL: +0776 169 1435
FAX: 086 520 4677
EMAIL: mader@skets.co.za



Legend

- Goosebay Canyon Farm
- Tar road
- Vaal River
- Goosebay cadastral info
- Goosebay dams
- Ridges
- Riparian zone
- Buffer zones
 - 100m power line buffer
 - 20m property boundary buffer
 - 100m road buffer
 - 102m wetland buffer (pre-mitigation)
- Mining infrastructure
 - Cut-off trench
 - Access road
 - 2.5MVA Power Supply
 - Settling ponds and POD
 - Plant and offices
 - Workshop
 - Fuel storage
 - Water Supply

CLIENT:
**GOOSEBAY FARM
(PTY) LTD**

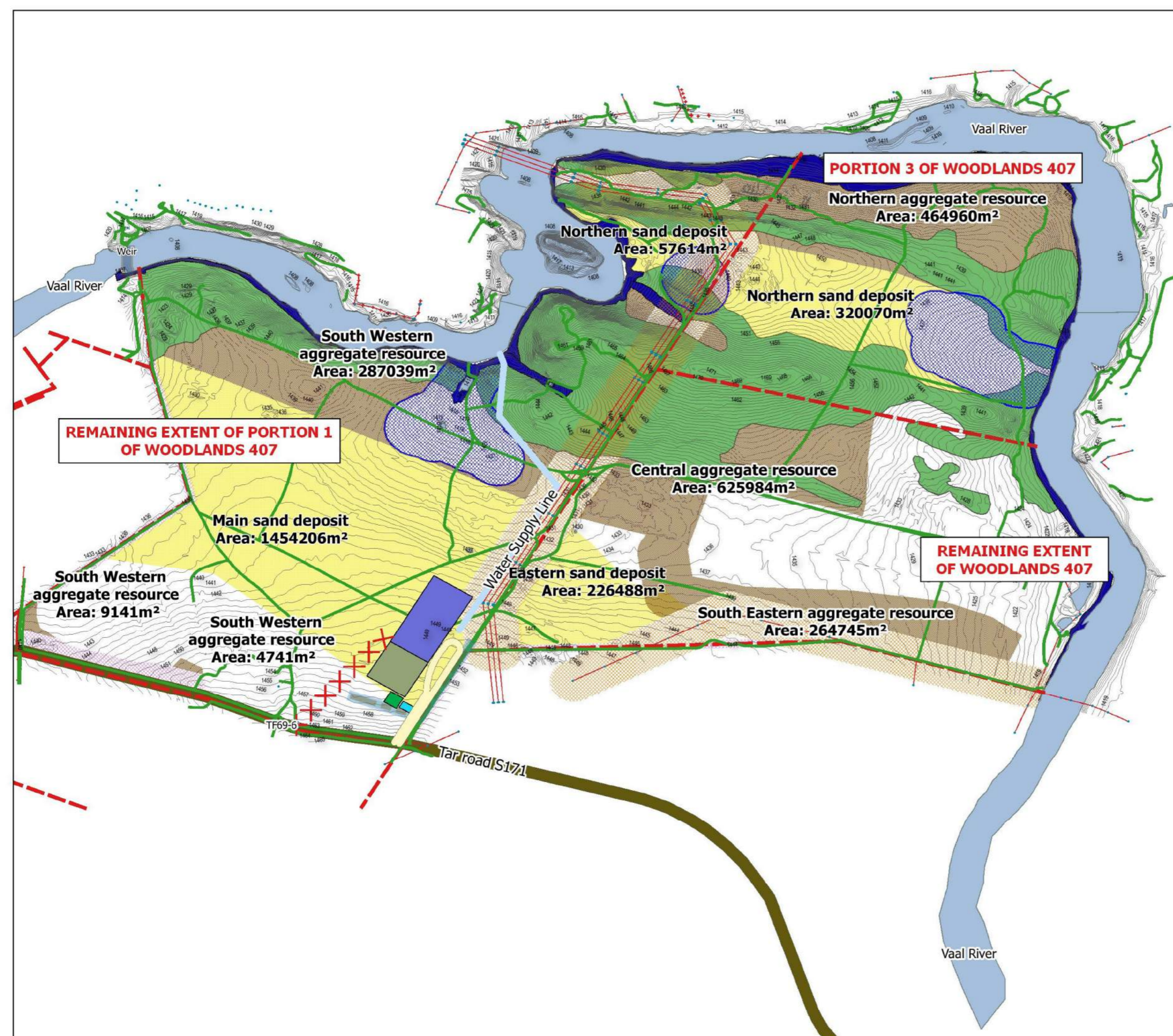
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Mining Works Program for Mining Right
Application
DESCRIPTION:
Conceptual Mining Infrastructure layout and
resource distribution

DATE: 2018-08-22 SCALE A3: 1:12 000

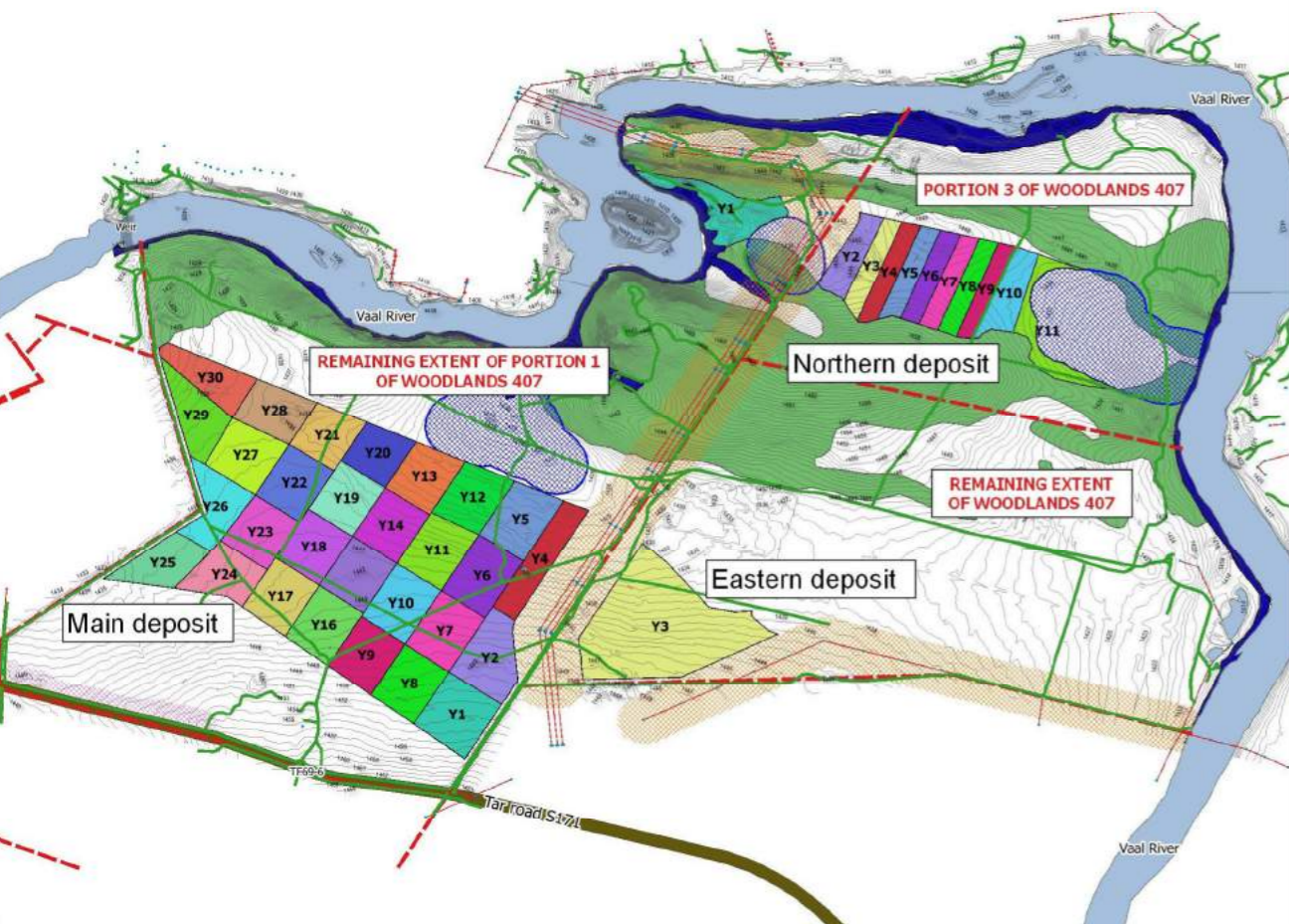
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DRAWING PREPARED BY:
MR. MADER VAN DEN BERG
ML(PROF) IN LANDSCAPE
ARCHITECTURE

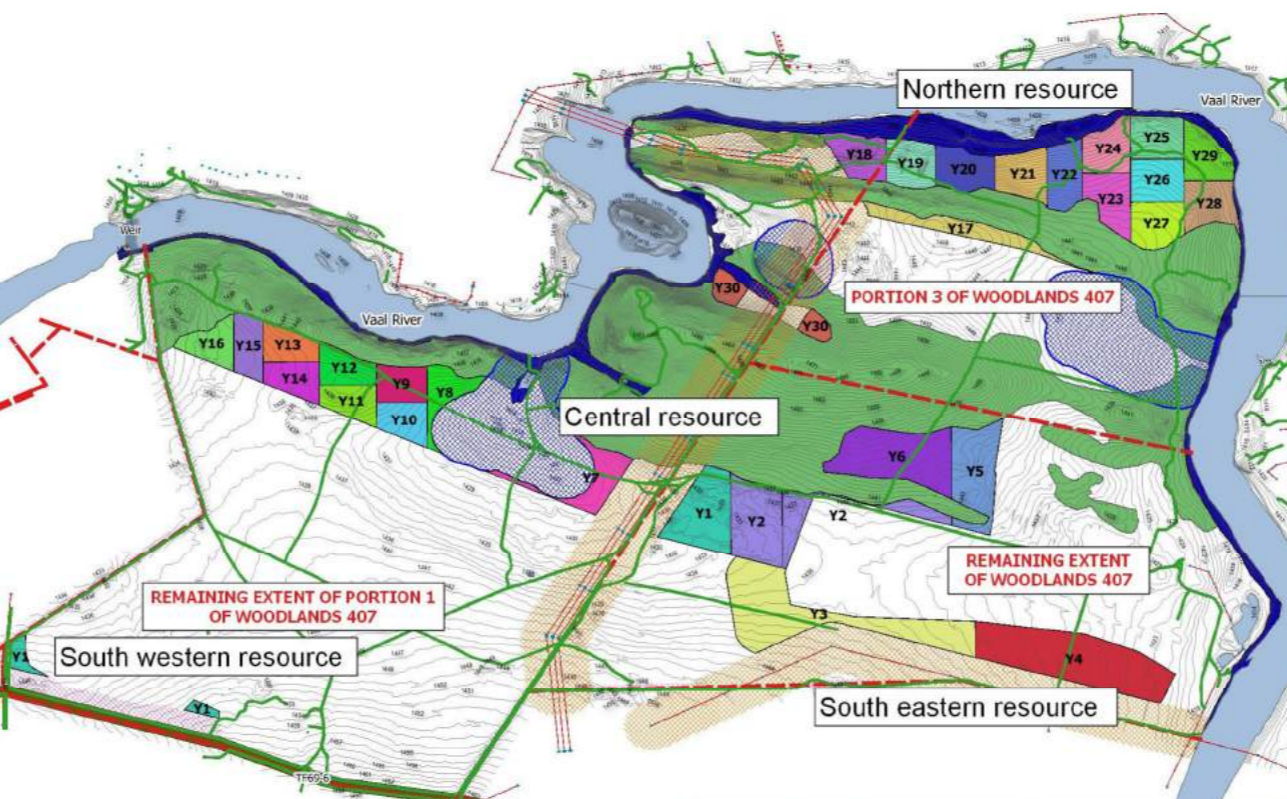
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1912
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30 year mining plan for sand reserve



30 year mining plan for aggregate resource



NOTES:
 Buffer areas were calculated according to the following criteria:
 - 102m around wetlands (preliminary)
 - 100m from main tar road
 - 100m from electrical infrastructure (relaxation can be applied for)
 - 20m from property boundaries

The following buffer zones are outstanding and requires incorporation to determine final resource distribution:
 - Buffer zones around archeological sites, riparian systems, ecological sensitive and high biodiversity areas. (Ridges and riparian zones were excluded from the resource distribution based on the scoping phase assessments and delineation. Buffer zones are still to be determined during EIA phase.

BLOCK REF	CROP	AREA CULTIVATED	CENTROID	PERIMETER
GOOSEBAY FARM				
Block A	Maize	279 844m ²	-26,75345 27,62983	2 110m
Block B	Maize	513 940m ²	-26,75173 27,62331	2 951m
Block C	Maize	223 939m ²	-26,75078 27,61692	2 479m
Block D	Maize	124 657m ²	-26,75287 27,61553	1 610m
Block E	Maize	244 681m ²	-26,75328 27,59195	1 946m
Block F	Maize	116 368m ²	-26,74858 27,62694	1 881m
Block G	Wheat	193 860m ²	-26,74655 27,62820	2 053m
Block H	Maize	155 128m ²	-26,75661 27,60109	1 783m
Lucerne field	Lucerne	19 327m ²	-26,74933 27,63128	584m
TOTAL		1 871 744m²		

Legend

Mine layout

- Access road
- 2.5MVA Power Supply
- Settling and POD
- Plant and offices
- Workshop
- Fuel storage
- Water Supply
- Cut-off trench

Goosebay Canyon Farm

- Tar road
- Vaal River Polygon
- GOOSEBAY TRACKS
- Goosebay cadastral info
- Goosebay dams
- Goosebay electricity

Buffer zones

- 102m Wetland buffer (pre-mitigation)
- 100m power line buffer
- 20m property boundary buffer
- 100m road intersection
- Riparian zone
- Ridges HBK

Resource distribution

- Aggregate resource
- Sand deposit

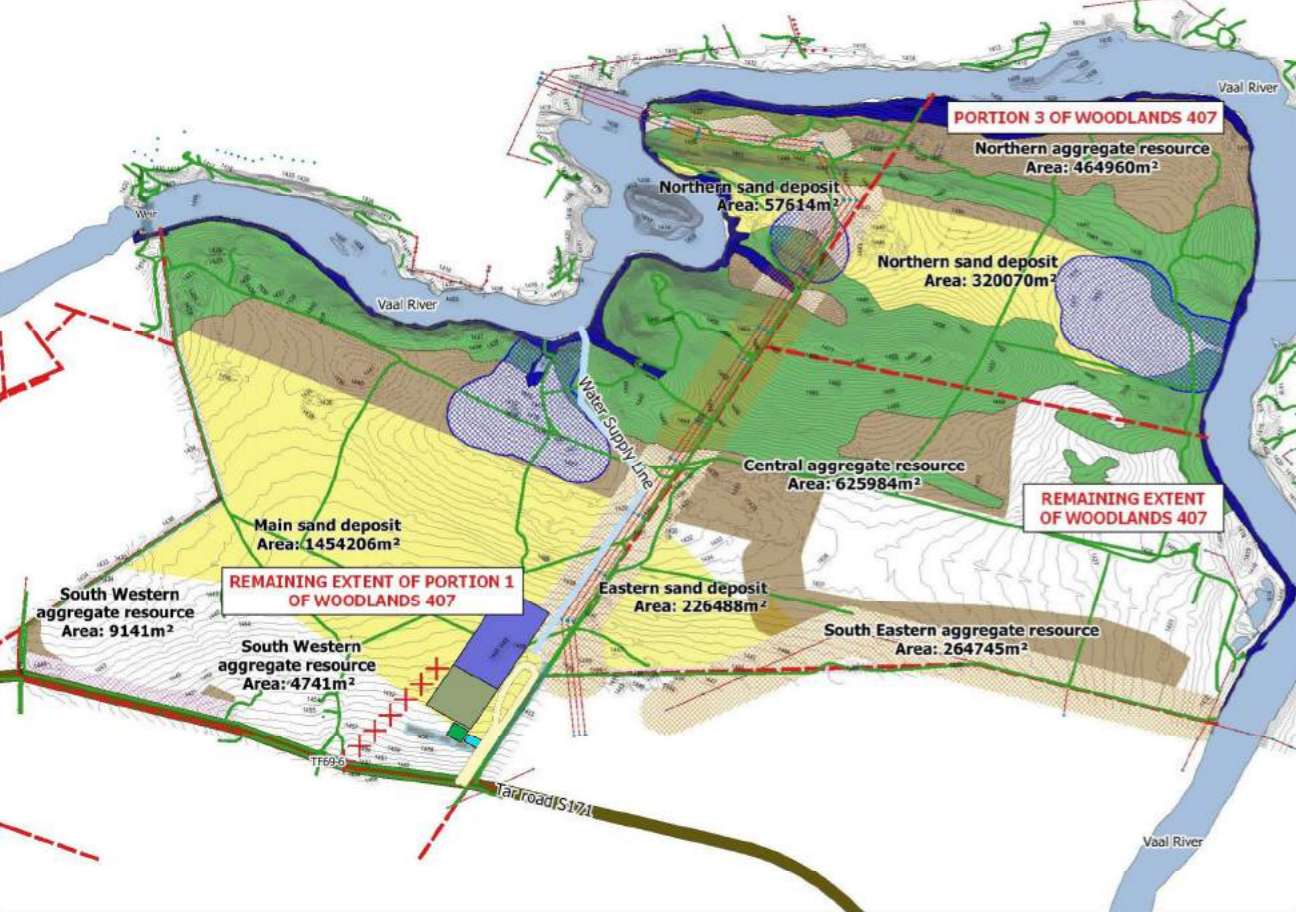
Goosebay Canyon Farm - Agriculture

- Agricultural block
- Fence line

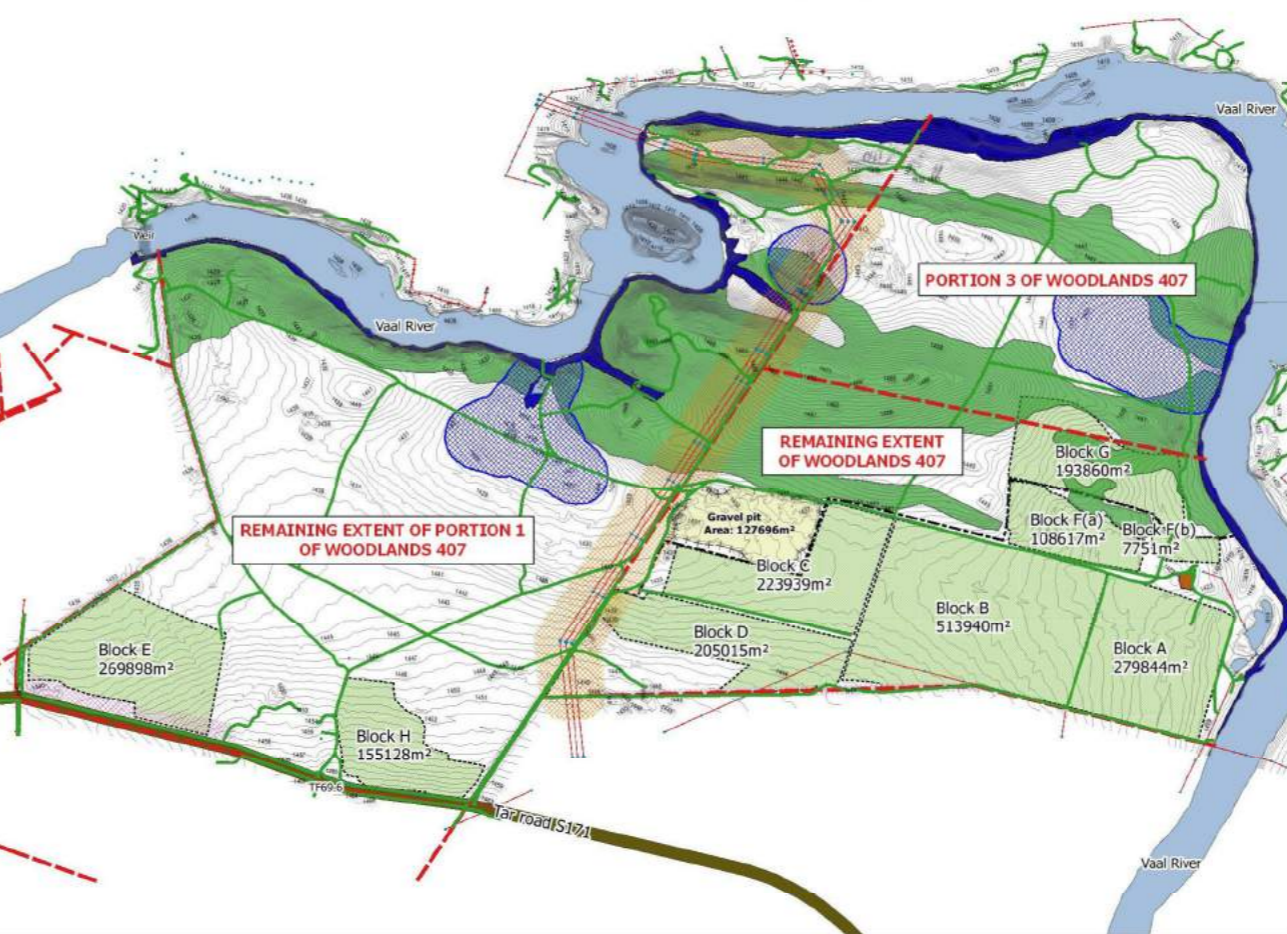
30 year mining plan

Y1	Y11	Y21
Y2	Y12	Y22
Y3	Y13	Y23
Y4	Y14	Y24
Y5	Y15	Y25
Y6	Y16	Y26
Y7	Y17	Y27
Y8	Y18	Y28
Y9	Y19	Y29
Y10	Y20	Y30

Resource distribution and proposed processing plant



Agricultural fields



CLIENT:
GOOSEBAY FARM (PTY) LTD

DRAWING TITLE:
 GOOSEBAY FARM, CURRENT AND FUTURE LAND USES

DESCRIPTION:
 REPRESENTATION OF MINING AND AGRICULTURAL ACTIVITIES ON GOOSEBAY FARM

DATE: 2018-08-22 SCALE (A1): 1:11 000

DRAWING NO: 1 OF 1 DRAWING VERSION: 11

DRAWING PREPARED BY:
 MR. MADER VAN DEN BERG
 ML(Prof) IN LANDSCAPE ARCHITECTURE

CONTACT DETAILS:
 P.O. BOX 14956
 ZIJLPOINTEIN 1912
 TEL: +0776 169 1435
 FAX: 086 520 4677
 EMAIL: mader@sklets.co.za



APPENDIX 3
OTHER ENVIRONMENTAL AUTHORISATION/S



the detea
 the department of economic
 development, tourism and
 environmental affairs
 FREE STATE PROVINCE

Environmental Authorisation

JAN 2011

Head of Department
 TOURISM, ENVIRONMENTAL
 AFFAIRS & ECONOMIC AFFAIRS
 Private Bag X 20801
 Bloemfontein 9300

**Authorisation register
 number:**

EMS/02/09/13

Holder of authorisation:

Winners Point 117 Trading
 (Pty) Limited

Location of activity:

Remaining extent of portion
 1 of the farm Woodlands
 407, portion 3 of the farm
 Woodlands 407 and the
 remaining extent of the farm
 Woodlands 407, Parys.

OFFICE OF THE DEPUTY DIRECTOR: Environmental Impact Management

Private Bag X 20801
 Bloemfontein
 9300

Tel +27 (0)51 400 4843
 Fax +27 (0)51 400 4842
 e-mail: mkhosana@dlveafs.gov.za

1. Decision

The Department is satisfied, on the basis of information available to it that, subject to compliance with the conditions of this environmental authorisation, the applicant should be authorised to undertake the activity specified below.

Details regarding the basis on which the Department reached this decision are set out in Annexure 1.

2. Activities authorised

By virtue of the powers conferred on it by the National Environmental Management Act, 1998 (Act No. 107 of 1998) and Regulation Notice 385 and 387 passed pursuant thereto, the Department hereby authorises –

Wnners Point 117 Trading (Pty) Limited

with the following contact details –

**Mr Mark van Wyk
Farm Woodlands
P. O. Box 17037, Sunward Park
1470**

**Tel: 011 913 1719
Cell: 083 449 3581**

to undertake the following activity –

20/11
Head of Department
TOURISM, ENVIRONMENTAL
AND ECONOMIC AFFAIRS
Private Bag x20801
Bloemfontein 9300

The construction of a wildlife estate consisting of the following:

Residential stands = 228
Residential Staff = 10 even
Syndicate stands = 7
Communal stands = 6
Lodge stand = 1 consisting of

- 50 Rooms
- 25 chalets
- 1 Restaurant
- 1 Conference centre
- 1 Wedding venue

Business stand = 1consting of

- Workshop
- Estate Clubhouse
- Equestrian Centre,

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Head of Department
TOURISM ENVIRONMENTAL
AND ECONOMIC AFFAIRS
Private Bag 2008
Bloemfontein 9300

listed under Regulations Notice 387 activity number 2 described as:

"Any development activity including associated structures and infrastructure, where the total area of the developed area is, or is intended to be, 20 hectares or more."

On the remaining extent of Portion 1 and Portion 3 of the Farm Woodlands 407, and the remaining extent of the Farm Woodlands 407, Parys, which falls within the jurisdiction of the District of Fzile Dabi hereinafter referred to as the "property/site".

Site co-ordinates: 27⁰ 45' 00" S
26⁰ 35' 02" E

The granting of this environmental authorisation is subject to the conditions set out below.

3. Conditions

12 Jun 2011
Head of Department
TOURISM, ENVIRONMENTAL
AND ECONOMIC AFFAIRS
Private Bag X20801
Bloemfontein 9300

3.1 Scope of authorisation

- 3.1.1 Authorisation of the activity is subject to the conditions contained in this document, which conditions form part of the environmental authorisation and are binding on the holder of the authorisation.
- 3.1.2 The holder of the authorisation shall be responsible for ensuring compliance with the conditions by any person acting on his or her behalf, including but not limited to, an agent, sub-contractor, employee or person rendering a service to the holder of the authorisation.
- 3.1.3 The authorised activity may only be carried out at the property/site indicated above.
- 3.1.4 Any changes to, or deviations from, the project description set out in this authorisation must be approved, in writing, by the Department before such changes or deviations may be effected. In assessing whether to grant such approval or not, the Department may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviations and it may be necessary for the holder of the authorisation to apply for further authorisation in terms of the regulations.
- 3.1.5 If commencement of the activity does not occur within 2 (two) years from the date of issue, the authorisation lapses and a new application for an Environmental Authorisation (EA) must be made.
- 3.1.6 This authorisation does not negate the holder of the authorisation's responsibility to comply with any other statutory requirements that may be applicable to the undertaking of the activity.

3.2 Appeal of authorisation

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Head of Department
TOURISM, ENVIRONMENTAL
AND ECONOMIC AFFAIRS
Private Bag 20801
Bloemfontein 9300

3.2.1 The holder of the authorisation must notify all registered interested and affected party, in writing and within 10 (ten) calendar days, of the Department's decision to authorise the activity. (Date of issue, date when EA is faxed).

3.1.2 The notification referred to in 3.2.1 must –

- a. specify the date on which the authorisation was issued;
- b. inform the interested and affected party of the appeal procedure provided for in regulation 62; and
- c. advise the interested and affected party that a copy of the authorisation and reasons for decision will be furnished on request.

4 Management of the activity

4.1 The provisions of the Environmental Management Plan ("EMP") included in the Environmental Impact Assessment Report dated, (11 August 2009) are an extension to the conditions of authorisations, and non-compliance with the conditions of the EMP would accordingly constitute non-compliance with the conditions of this authorisation.

4.2 The EMP must be included in all contract documentation for the construction phase of the development.

4.3 The Department must be notified, within 30 days thereof, of any change of ownership and/or project developer. Conditions imposed in this EA must be made known to the new owner and/or developer and are binding on the new owner and/or developer.

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AND ECONOMIC AFFAIRS
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Bloemfontein 9300

5 Monitoring

12 JAN 2011

- 5.1 Records related to compliance/ non-compliance with conditions of this authorisation must be kept in good order. Such records should be made available to this Department within seven (7) days from the date of written request from this Department.
- 5.2 Non-compliance with or any deviation from the conditions of this authorisation as set out in the EA is regarded as an offence, and after reasonable provision has been given for remedial action, will be dealt with in terms of Section 24F of the National Environmental Management Act (Act No. 107 of 1998) as well as any other appropriate legal mechanisms.

6 Recording and reporting to the Department

- 6.1 The applicant must appoint an independent auditor to conduct an environmental audit to ensure that the conditions, mitigation measures and recommendations stipulated in this environmental authorization are complied with.
- 6.2 Records relating to monitoring and auditing must be made available by the applicant on request by any authority in respect of this development.

7 Commissioning of the activity

- 7.1 A written notice must be given to the Department seven (7) days before the activity commences. The notice must include a date on which it is anticipated that the activity will commence.

8 Construction and operation of the facility

Head of Department
TOURISM, ENVIRONMENTAL
AND ECONOMIC AFFAIRS
Private Bag X20801
Bloemfontein 9300

8.1 Storm water

8 2 2011

- 8.1.1 Storm water drainage management must be by means of surface runoff drainage towards the northern and eastern side of the proposed development into the basin of the Vaal River.
- 8.1.2 The roads must be constructed to accommodate the surface runoff to the lowest point of the development.
- 8.1.3 If during the detail design of the roads, it is found that the volume of the storm water is such that a 1: 10 year flood cannot be accommodated on the road surface, an open channel storm water system must be provided.

8.2 Surface water, soil and groundwater contamination

- 8.2.1 Provision must be made to prevent ponding on site and to divert "clean" storm water around operations so that it cannot become contaminated as a result of construction activities.
- 8.2.2 No storing or decanting of fuel must occur on the development site and no servicing of machinery must take place on the site.

8.3 Water supply

- 8.3.1 The developer must obtain a water licence, information of the existing water rights usage and the supply of sufficient water to the proposed development.
- 8.3.2 Water will be pumped from the Vaal River by two or three new pumping stations, to the new planned reservoirs and water treatment units.
- 8.3.3 Alternatively, ground water from the existing and new boreholes must be incorporated to be used for some of the extensions of the developments as a primary source of water for domestic use.
- 8.3.4 This must only be utilized if the water supply from the Vaal River is compromised and the construction cost of a pipeline from the planned reservoirs on the hills exceeds the cost of the drilling of new borehole and the construction of a new reservoir near the applicable area of the development.

8.4 Sewage

- 8.4.1 There is currently no water borne sewer disposal network in this area.

- 8.4.2 The developer must be responsible for the design and construction of the internal sewer network, conserving tanks and/or treatment units and pump stations.
- 8.4.3 The internal sewerage pipeline network of 160mm solid wall Upvc pipes must be constructed and be accommodated within the road reserves and as mid block lines in certain areas. Internal sewers must connect to the new planned treatment units.
- 8.4.4 All treatment plants must be installed above the 1 in 100 year flood line.
- 8.4.5 The above mentioned systems must be emptied by an approved company and spoiled at the existing sewerage outfall of Ngwathe Municipality on the request by the owner of the property or responsible Land Owners Association.
- 8.4.6 The water from the treatment facility must be used for irrigation and to be pumped to artificially created water points for game.
- 8.4.7 Construction workers must be provided with chemical toilets.
- 8.5 Roads
- 8.5.1 Access to the proposed development must be from the existing road, Barrage-Parys surfaced Road No. S171, southwest of the proposed township.
- 8.5.2 The access road as well as the internal roads must be to a gravel standard.
- 8.6 Electricity
- 8.6.1 Adequate supply of Escom electricity is already available on the property.
- 8.6.2 The development must be supplied via the existing Escom overhead lines crossing the site.
- 8.6.3 The possibility of the Ngwathe Municipality providing electricity must also be considered during the pre- development discussion with the local authority.
- 8.6.4 The developers must as far as possible consider other alternatives such as solar and gas energy to save electricity.
- 8.7 Waste
- 8.7.1 Refuse and other waste must be removed continuously throughout construction.
- 8.7.2 During the operational phase, a refuse removal must be conducted by the governing body and must be spoiled at a Local Authority's existing landfill site. Sufficient capacity is available at the municipal waste site.

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AND ECONOMIC AFFAIRS
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12 2011

Head of Department
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AND ECONOMIC AFFAIRS
Private Bag 20801
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8.8 Soil erosion

- 8.8.1 Appropriate action must be taken to reduce possible soil erosion during the construction and operational phases.
- 8.8.2 A ripper must be used to loosen soil compacted by construction vehicles.

8.9 Air pollution

- 8.9.1 Vehicular movement over the site must be at slow speeds in order to keep dust generation to a minimum during construction phase.
- 8.9.2 Dust control measures such as watering must be implemented on site where vehicular movement takes place and where soil placing and removal is occurring.

8.10 Noise pollution

- 8.10.1 Construction activities must be limited to the hours between 07h00 and 18h00.

8.11 Ecology

- 8.11.1 No exotic plant species, especially lawn grasses and other ground covering plants, should be introduced in the landscaping of the proposed site, especially in the wooded areas along the river as they will interfere with the nature of the area.
- 8.11.2 The areas earmarked for exclusion from the development must be fenced off during the construction phase to ensure that the natural vegetation is not disturbed.
- 8.11.3 No development must be allowed within the 100 year flood line.
- 8.11.4 The riparian vegetation along the Vaal River must be left as natural as possible.
- 8.11.5 Larger indigenous trees must be preserved to retain as much of the Woodland bird habitat as possible.
- 8.11.6 During the construction phase, noise must be kept to a minimum to reduce the impact of the development on the fauna.
- 8.11.7 Care must be taken not to create light pollution at night by placement of lights appropriately.
- 8.11.8 Watering holes must be ideally constructed from concrete with larger stones in it that will stop the animals from slipping.

291

Head of Department
TOURISM, ENVIRONMENTAL
AND ECONOMIC AFFAIRS
Private Bag 24080
Stellenbosch 7500

8.12 Geotechnical investigation

8.12.1 The Geotechnical Desk Study Report has shown that further investigations will be required for township proclamation.

8.12.2 The investigations will include dolomite stability investigations of those development areas underlain either directly by the Malmani Dolomite or by the overlying Pretoria Group rocks where these are less than 60m thick.

8.13 Fire fighting protection

8.13.1 A fire protection system, for example trailer-mounted water tanks, equipment and fire fighting appliances must be in place according to specifications and guidelines.

8.14 Historical Findings

8.14.1 Several stone-walled enclosures were recorded in the survey area; none of them are older than 60 years.

8.14.2 A strategic entrenchment (rebut) that dates to the South African War (Aglo- Bloer War) of 1899-1902 are found on site. The structure is older than 60 years and as a result protected under the NHRA (Act 25 of 1999).

8.14.3 Any impact on the site must be mitigated by phase 2 investigation.

8.14.4 A cemetery with 48 graves was recorded and the graves are protected under NHRA (Act 25 of 1999).

8.14.5 The graves must not be impacted upon by the development and must be protected.

8.14.6 If during construction any possible finds are made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the findings.

8.15 Site closure and decommissioning

8.15.1 Rehabilitation Phase

Before decommissioning of the development a rehabilitation plan must be compiled and should be approved by this Department.

Hand of Department
Team of Environmental
Tourism, Environmental
and Economic Affairs
Private Bag 2040
Pretoria 0001

9. General

12 Dec 2011

9.1 A copy of this authorisation must be kept at the property where the activity will be carried on. The authorisation must be produced to any authorised official of the Department who requests to see it and must be made available for inspection by any employee or agent of the holder of the authorisation who works or undertakes work at the property.

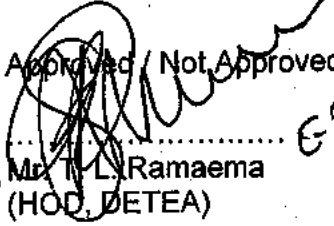
9.2 Where any of the applicant's contact details change, including the name of the responsible person, the physical or postal address and/ or telephonic details, the applicant must notify the Department as soon as the new details become known to the applicant.

9.3 The holder of the authorisation must notify the Department, in writing, within 7 (seven) days if condition 7.1 of this authorisation is not adhered to.

In all other cases, the holder of the authorisation must notify the Department, in writing, within 7 (seven) days if a condition of this authorisation is not adhered to. Any notification in terms of this condition must be accompanied by reasons for the non-compliance.

Date of environmental authorisation:

Approved / Not Approved:


..... E.B. Makhabela
Mr. T. L. Ramaema
(HOD, DETEA)

20/12/10
.....
Date

Hand of Department
Team of Environmental
Tourism, Environmental
and Economic Affairs
Private Bag 2040
Pretoria 0001

Annexure 1: Reasons for Decision

1. Background

The applicant, Mr Mark van Wyk (Winners Point 117 Trading (Pty) Limited) applied for authorisation to carry on the following activity –

The construction of a wildlife estate consisting of the following:

- Residential stands = 228
- Residential Staff = 10 erven
- Syndicate stands = 7
- Communal stands = 6
- Lodge stand = 1 consisting of
 - 50 Rooms
 - 25 chalets
 - 1 Restaurant
 - 1 Conference centre
 - 1 Wedding venue
- Business stand = 1 consisting of
 - Workshop
 - Estate Clubhouse
 - Equestrian Centre,

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Head of Department
TOURISM ENVIRONMENTAL
AND ECONOMIC AFFAIRS
Private Bag x20801
Bloemfontein 9300

The applicant appointed Vaalplan Town & Regional Planners to undertake the Scoping and Environmental Impact Assessment process for the activity as described under Regulation Notice 385 and 387.

2. Information considered in making the decision

In reaching its decision, the Department took, *inter alia*, the following into consideration -

- a) The information contained in the Environmental Impact Assessment Report dated 11 August 2009 completed by Vaalplan Town & Regional Planners.
- b) The objectives and requirements of relevant legislation, policies and guidelines, including section 2 of the National Environmental Management Act, 1998 (Act No. 107 of 1998); and
- c) The findings of the site visit undertaken by Ms M. P. Gunundu from the Department of Economic Development, Tourism and Environmental Affairs.

3. Key factors considered in making the decision

All information presented to the Department was taken into account in the Department's consideration of the application. A summary of the issues which, in the Department's view, were of most significance is set out below.

- a) Storm water management
- b) Water supply and water use
- c) Sewage
- d) Roads
- e) Electricity
- f) Waste generated during construction and operation phases
- g) Soil erosion
- h) Air pollution
- i) Noise pollution
- j) Ecology
- k) Geotechnical investigation
- l) Fire fighting protection
- m) Historical findings

12 JAN 2011
Head of Department
TOURISM AND ENVIRONMENTAL
AFFAIRS
Private Bag 9080
Bloemfontein 9300

4. Findings

12 JAN 2011

Head of Department
TECHNICAL ENVIRONMENTAL
AFFAIRS
P.O. Box 1000
Stellenbosch 7129

After consideration of the information and factors listed above, the Department made the following findings –

- a) All roads must be constructed to accommodate the surface runoff to the lowest point of the development.
- b) The developer must obtain a water licence, information of the existing water rights usage and the supply of sufficient water to the proposed development.
The existing and new boreholes must be incorporated to be used for some of the extensions of the developments as a primary source of water for domestic use.
The water supply from the Vaal River must not be compromised by the development.
- c) All waste treatment plants must be installed above the 1 in 100 year flood. No sewage must be spoilt at the existing sewage outfall at Ngwathe Municipality in Parys until the sewage treatment works is upgraded.
- d) Access to the proposed development must be from the existing road; Barrage- Parys surfaced Road No S171, southwest of the proposed development.
- e) The developers must as far as possible consider other alternatives such as solar and gas energy to save electricity.
- f) Refuse and other waste must be removed continuously throughout construction and operational phases and be disposed of at a permitted waste disposal site.
- g) Appropriate action must be taken to reduce possible soil erosion during the construction and operational phases.

- h) Dust control measures such as watering must be implemented on site where vehicular movement takes place and where soil placing and removal is occurring.
- i) Construction activities must be limited to the hours between 07h00 and 18h00.
- j) No development must be allowed within the 100 year flood line.
The riparian vegetation along the Vaal River must be left as natural as possible.
- k) Further investigations must be conducted for township proclamation as recommended in the Geotechnical Desk Study Report.
- l) Fire protection system must be in place according to the specifications and guidelines.
- m) The graves must not be impacted upon by the development and must be protected.
Any impact on the Strategic entrenchment (redoubt) that dates back to the South African War (Anglo- Boer War) of 1899-1902 found on site must be mitigated by phase 2 investigation.

In view of the above, the Department is satisfied that, subject to compliance with the conditions contained in the environmental authorisation, the proposed activity will not conflict with the general objectives of integrated environmental management laid down in Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and that any potentially detrimental environmental impacts resulting from the proposed activity can be mitigated to acceptable levels. The application is accordingly granted.

12 JAN 2011

Head of Department
TOURISM, ENVIRONMENTAL
AND ECONOMIC AFFAIRS
Private Bag X20801
Bloemfontein 9300

APPENDIX 4
PUBLIC PARTICIPATION

To be conducted after acceptance of the Integrated Environmental Authorisation Application.

APPENDIX 5
PROOF OF APPLICATION SUBMISSION

This completed application serves as proof of the Mining Right Application in terms of the Mineral and Petroleum Resource Development Act (Act 28 of 2002).