



## mineral resources

Department:

Mineral Resources

**REPUBLIC OF SOUTH AFRICA**

### **SCOPING REPORT**

#### **FOR LISTED ACTIVITIES ASSOCIATED WITH MINING RIGHT AND/OR BULK SAMPLING ACTIVITIES INCLUDING TRENCHING IN CASES OF ALLUVIAL DIAMOND MINING**

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

**NAME OF APPLICANT:** KIMSWA MINING (PTY) LTD  
**TEL NO:** 084 208 9088 (Roellen)  
**CEL NO:** 082 576 5549 (LOHAN)  
**FAX NO:** 086 510 7120  
**POSTAL ADDRESS:** PO Box 2189; KIMBERLEY; 8300  
**PHYSICAL ADDRESS:** 57 Kenilworth Road, De Beers, Kimberley, Northern Cape, 8301

**FILE REFERENCE NUMBER SAMRAD:** (NC) 30/5/1/2/2/ 10144MR

**IMPORTANT NOTICE**

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

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

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

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

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

**OBJECTIVE OF THE SCOPING PROCESS**

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

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

## PART A

## SCOPE OF ASSESSMENT AND ENVIRONMENTAL IMPACT ASSESSMENT REPORT

## 2) Contact Person and Correspondence Address

## a) Details of:-

## I) Details of the EAP who prepared the report:

Name of the Practitioner:	ROELIEN OOSTHUIZEN
Tel No.:	084 208 9088
Fax No.:	086 510 7120
E-mail address:	<a href="mailto:roosthuizen950@gmail.com">roosthuizen950@gmail.com</a>
Physical Address:	4 Millin Street, Hadisonpark 8301
Postal Address:	P.O. Box 110823, Hadisonpark 8306

## II) Appointed by:

KIMSWA MINING (PTY) LTD

## III) Expertise of the EAP

## (1) The qualifications of the EAP

Masters in Environmental Management (UFS)  
B-Comm in Human and Industrial- Psychology (NWU)  
(with evidence attached as Appendix 1)

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

(In carrying out the Environmental Impact Assessment Procedure)

Relevant past experiences in carrying out the Environmental Impact Assessment Procedures include Environmental Impact Assessments, Environmental Management Plans/Programmes/ Reports, Performance assessments, Rehabilitation progress assessments, Environmental Liability assessments, Environmental compliance monitoring, Scoping Reports, etc. See attached CV.

(with evidence attached as Appendix 2)

## b) Description of the property

<b>Farm Name:</b>	A Portion of Remainder Priel 281 and a Portion of the Vaal River (112.1703 ha) located in the Barkly-Wes district
<b>Application area (Ha)</b>	112.1703 ha (One hundred and twelve comma one seven zero three hectares.)
<b>Magisterial district:</b>	Barkly-Wes
<b>Distance and direction from nearest town</b>	12km from Barkly-Wes on the R31 towards Postmasburg. North of Barkly-West next to farm 350 (Gong-Gong), Northern Cape, South Africa.
<b>21 digit Surveyor General Code for each farm portion</b>	C0070000000028100000 ( A Portion of the Remainder of Priel 281) <b>UNSURVEYED STATE LAND</b> <b>Total Extent of application area: 112,1703ha</b>
<b>Description of the overall activity.</b> (Indicate Mining Right, Mining Permit, Prospecting right, Bulk Sampling, Production Right, Exploration Right, Reconnaissance permit, Technical co-operation permit, Additional listed activity)	<p>The following is a description of a typical South African alluvial diamond mining operation, which is also being utilized at Kimswa. The mining method being employed is a strip mining process with oversize material from the gravel scalping and the tailings from the plant, being used as backfill material prior to final rehabilitation. Gravels are excavated, loaded and transported to the nearby treatment facility using articulated dump trucks. Gravels are then loaded onto a vibrating grizzly and the +32 mm oversize material is discarded back into the open pit (about 55% reduction). The remaining -32 mm fraction is loaded into a series of 2 X 16 sixteen foot rotary pans, each with a treatment capacity of 40 tph. Tracer tests are done regularly to ensure that the pans are operating at the correct density. Concentrate is tapped continuously from each of the pans every three hours into three ton holding bins and transported with trucks to totally enclosed final recovery unit which is situated on Holpan near Windsorton, which is designed to use both X-ray and grease diamond recovery methods or any other facility which is chosen by Kimswa Mining.</p> <p>The operational phase of the mining operation will include the mining of alluvial diamonds by means of open cast mining with machinery in approximately 100 m x 100 m blocks.</p> <p>Topsoil will be removed from the first block, where after it will be stored separately on the high ground of the proposed mining area. Stored topsoil will be kept separate from overburden and will not be used for the building or maintenance of access roads. Stored topsoil will be adequately protected from being eroded or blown away.</p> <p>Exposed diamondiferous gravel of Block 1 will then be removed by means of a back actor and loaded</p>

onto a tipper truck, which will transport it to the central mineral processing plant. At the plant the diamondiferous gravel will be sorted by means of a grizzly screen grid and all material larger than 100 mm will be separated from the rest. This material will be used in the backfilling stage.

Screened material smaller than 100 mm will be transported to a stockpiling area via frond-end loader. From here it will be transported to a conveyor belt, which will feed it onto a wet rotary screen and then directly onto at approximately 2 X 16 feet washing pans.

The following procedure will be followed in terms of backfilling and rehabilitation:

The coarse gravel sifted at the grizzly screen, tailing from the pans and fine concentrate will be transported back to and dumped into open Block 1. During this process of backfilling, variation in the dumping sequence of different sized materials will be followed to ensure better compaction and stability of the reclaimed gravel. This will ensure that the voids surrounding the coarse gravel will be filled up with finer sediments. Compaction will be achieved through the movement of heavy vehicles over the area during the backfilling stage.

The river portion will only be backfilled with coarse material to limit the creation of sediments in the river.

The mining sequence will be followed until the last block is reached. Topsoil stored at the beginning of the mining operation will now be utilized for the final rehabilitation of the last block on the land portion.

Workshop equipment and tools to be used consist of secured container stores containing grease pumps, rigger chains, hydraulic jacks, air compressors, electric testers, welders, grinders, socket sets, gas sets, magnetic drills, hydraulic test instruments, tools, spanners and tool boxes. Mining activities will cover an area of approximately 40% of the area. Approximately 15 000 litres of process water will be required by the proposed mining operation per hour per pan however modern technology in de-sanding may reduce water consumption in some areas.

Process water is sourced from the Vaal River. Other sources include pumping water from the slimes disposal facility and rain water that collects within the mining excavations/blocks. The production rate of the proposed operation will be approximately 40 tph per pan.

c) Locality map

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

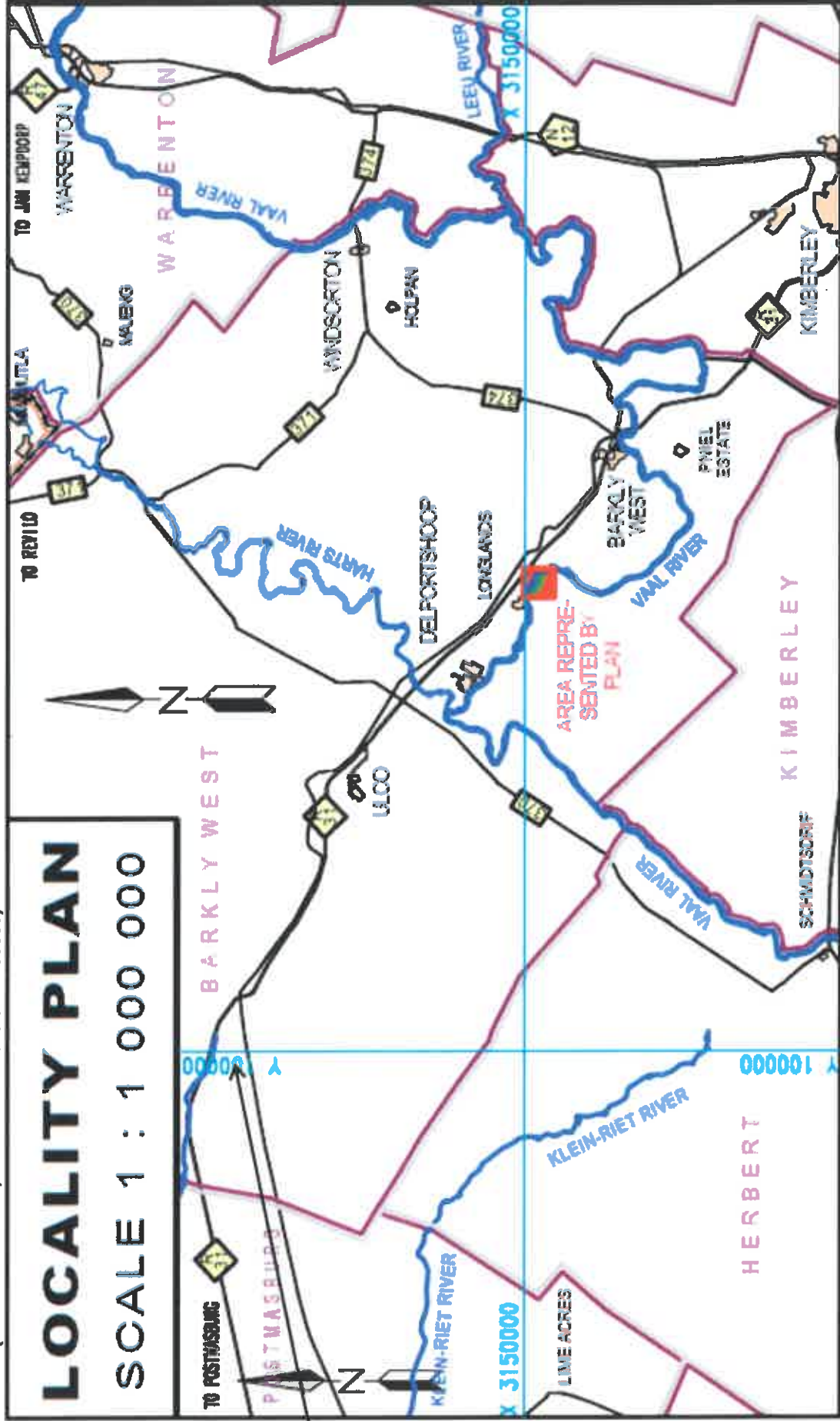


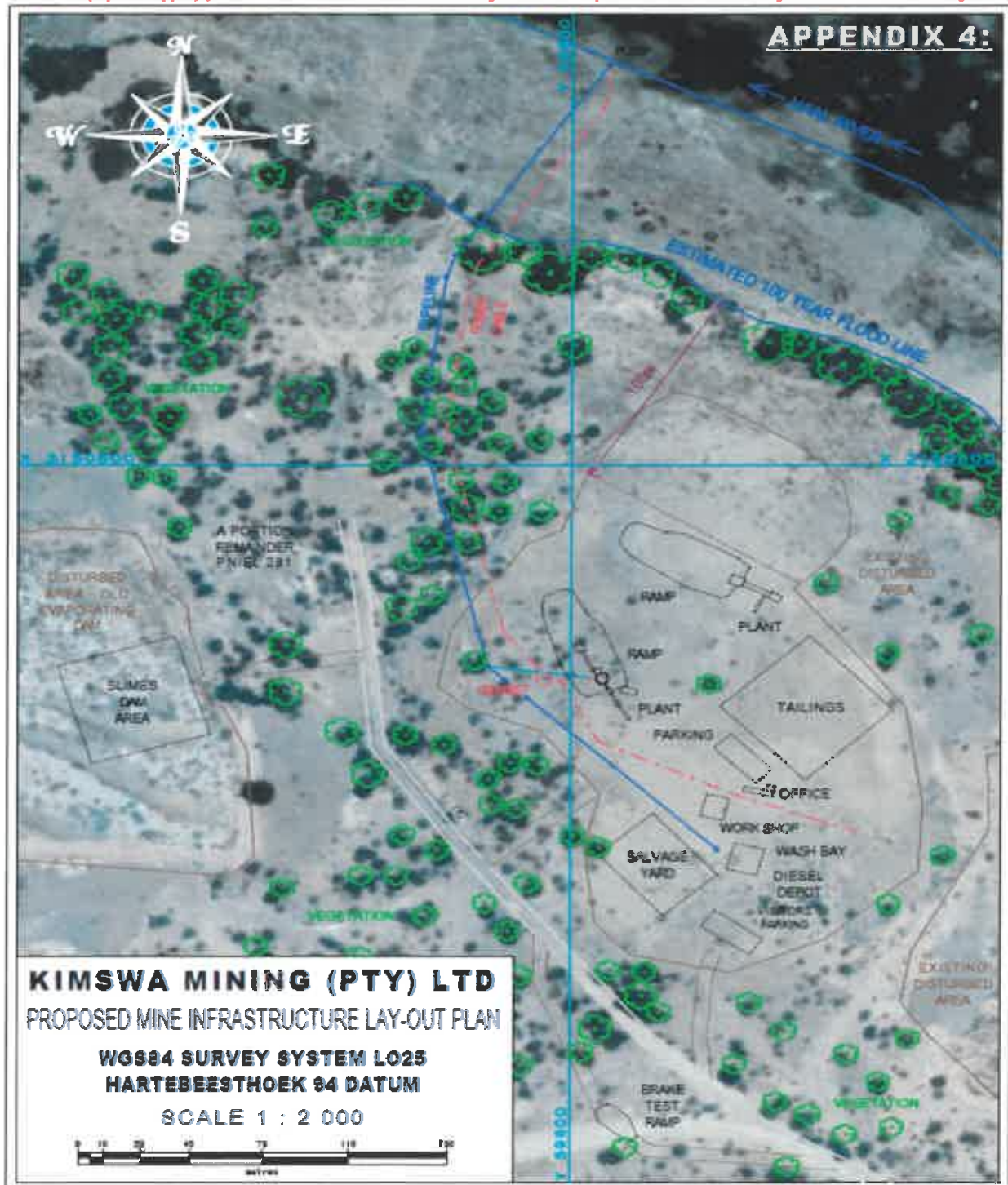
Figure 1: 1:250 000 topocadastral map KIMBERLEY 2824 indicating the application area with a BLACK ARROW. INSERT LOCALITY ON 1:500 000.

d) **Description of the scope of the proposed overall activity**

i) **Listed and specified activities**

(provide a plan drawn to a scale acceptable to the competent authority but not less than 1: 10 000 that shows the location, and area (hectares) of all the aforesaid main and listed activities, and infrastructure to be placed on site)

**No Infrastructure will be developed in the river as the application will also include a Section 21 WULA (C) and (I) application. No Infrastructure may be developed within the 1:50 year flood line of any river.**



**Figure 2: A map of the area indicating the overall location and extent of listed activities and main infrastructure on the mining site not to scale, the proposed processing area is indicated with a red block.**



Table 1: Listed and Specified Activities

NAME OF ACTIVITY	Aerial extent of the Activity Ha or m <sup>2</sup>	LISTED ACTIVITY  (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE  (GNR 544, GNR 545 or GNR 549)	WASTE MANAGEMENT AUTHORISATION  (Indicate whether an authorisation is required in terms of the Waste Management Act).  (Mark with an X)
(E.g. for prospecting – drill site, site camp, ablation 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, ablation, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc. ... etc. ... etc.)				
<b>Activity 17 of NEMA Listing Notice 2</b> "Any activity including the operation of that activity which requires a mining right [section 22 of MPRDA], including infrastructure, structures and earthworks, directly related to the extraction of a mineral resource ..."	112,1703 ha	X	GNR 984	
<b>Activity 12 of NEMA Listing notice 1</b> "The development of— (i) canals exceeding 100 square metres in size; (ii) channels exceeding 100 square metres in size; (iii) bridges exceeding 100 square metres in size; (iv) dams, where the dam, including infrastructure and water surface area, exceeds 100 square metres in size; (v) weirs, where the weir, including infrastructure and water surface area, exceeds 100 square metres in size; (vi) bulk storm water outlet structures exceeding 100 square metres in size; (x) buildings exceeding 100 square metres in size; or (xii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (a) within a watercourse; (b) in front of a development setback; or	5000m <sup>2</sup>	X	GNR 983	

<p><b>(c) If no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse"</b></p> <p>Regulation GN R704, published on 4 June 1999 in terms of the National Water Act (Use of water for mining and related activities) GNR984: Activity 17 Consideration of GN704 – Water Act</p>				
<p><b>Activity 21 of NEMA Listing Notice 2</b> Any activity including the operation of that activity associated with the primary processing of a mineral resource including winning, reduction, extraction, classifying, concentrating, crushing, screening and washing but excluding the smelting, beneficiation, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies.</p>	<p>0.5 ha will be used for the processing and associated infrastructure.</p>	<p>X</p>	<p>GNR 984</p>	
<p><b>Activity 24(ii) of NEMA Listing Notice 1</b> The development of haul roads 15m wide with no reserve</p>	<p>±5 000m<sup>2</sup> on the Area.</p>	<p>X</p>	<p>GNR983</p>	
<p><b>Activity 56(ii) of NEMA Listing Notice 1</b> The continuous lengthening (and rehabilitation) of haul roads 15m wide with no reserve</p>	<p>±5 000m<sup>2</sup> on the Area.</p>	<p>X</p>	<p>GNR983</p>	
<p><b>Activity 19 of NEMA Listing Notice 1</b></p>	<p>The infilling or depositing of any material more than 5 cubic metres into, or dredging, excavation, removal or movind of soil, sand, shells, shell grit, pebbles or</p>	<p>X</p>	<p>GNR983</p>	

	rock or more than 5 cubic metres from- (i) a watercourse			
<b>Activity 15 of NEMA Listing Notice 2</b> 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."	A total of ±50 hectares will be physically disturbed were the alluvial diamond material will be removed and washed.	X	GNR984	
<b>Activity 10 of NEMA Listing Notice 3:</b> "The development of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic meters."	250m <sup>2</sup>	X	GNR985	
<b>Activity 9 of Category A under the National Environmental Management: Waste Act 59 of 2008</b>	The disposal of inert waste of 10 000 tons, excluding the disposal of such waste for the purposes of levelling and building which has been authorised by other legislation.		GNR 633	X
<b>Activity 15 of Category A under the National Environmental Management: Waste Act 59 of 2008</b> The continuous establishment and reclamation of temporary stockpiles resulting from activities which require a mining right.	20 000m <sup>2</sup>		GNR 633	X

<p><b>OTHER ACTIVITIES (Associated Infrastructure not considered to be listed activities)</b></p> <p>Temporary Workshop Facilities Storage Facilities</p> <p>Concrete Bund walls and diesel Depots Ablution Facilities</p> <p>Topsoil Stockpiles</p> <p>Overburden Stockpiles</p>	<p>±300m<sup>2</sup></p> <p>±3000m<sup>2</sup></p> <p>±250m<sup>2</sup></p> <p>±25m<sup>2</sup></p>		<p><b>NOT LISTED</b></p>	
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**ii) Description of the activities to be undertaken**

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

The following is a description of a typical South African alluvial diamond mining operation, which is also being utilized at Kimswa. The mining method being employed is a strip mining process with oversize material from the gravel scalping and the tailings from the plant, being used as backfill material prior to final rehabilitation. Gravels are excavated, loaded and transported to the nearby treatment facility using articulated dump trucks. Gravels are then loaded onto a vibrating grizzly and the +32 mm oversize material is discarded back into the open pit (about 55% reduction). The remaining -32 mm fraction is loaded into a series of 2 X 16 sixteen foot rotary pans, each with a treatment capacity of 40 tph. Tracer tests are done regularly to ensure that the pans are operating at the correct density. Concentrate is tapped continuously from each of the pans every three hours into three ton holding bins and transported with trucks to totally enclosed final recovery unit which is situated on Holpan near Windsorton, which is designed to use both X-ray and grease diamond recovery methods or any other facility which is chosen by Kimswa Mining.

The operational phase of the mining operation will include the mining of alluvial diamonds by means of open cast mining with machinery in approximately 100 m x 100 m blocks.

Topsoil will be removed from the first block, where after it will be stored separately on the high ground of the proposed mining area. Stored topsoil will be kept separate from overburden and will not be used for the building or maintenance of access roads. Stored topsoil will be adequately protected from being eroded or blown away.

Exposed diamondiferous gravel of Block 1 will then be removed by means of a back actor and loaded onto a tipper truck, which will transport it to the central mineral processing plant. At the plant the diamondiferous gravel will be sorted by means of a grizzly screen grid and all material larger than 100 mm will be separated from the rest. This material will be used in the backfilling stage.

Screened material smaller than 100 mm will be transported to a stockpiling area via front-end loader. From here it will be transported to a conveyor belt, which will feed it onto a wet rotary screen and then directly onto at approximately 2 X 16 feet washing pans.

The following procedure will be followed in terms of backfilling and rehabilitation:

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The river portion will only be backfilled with coarse material to limit the creation of sediments in the river.

The mining sequence will be followed until the last block is reached. Topsoil stored at the beginning of the mining operation will now be utilized for the final rehabilitation of the last block on the land portion.

Workshop equipment and tools to be used consist of secured container stores containing grease pumps, rigger chains, hydraulic jacks, air compressors, electric testers, welders, grinders, socket sets, gas sets, magnetic drills, hydraulic test instruments, tools, spanners and tool boxes. Mining activities will cover an area of approximately 40% of the area. Approximately 15 000 litres of process water will be required by the proposed mining operation per hour per pan however modern technology in de-sanding may reduce water consumption in some areas.

Process water is sourced from the Vaal River. Other sources include pumping water from the slimes disposal facility and rain water that collects within the mining excavations/blocks. The production rate of the proposed operation will be approximately 40 tph per pan.

## **II. Infrastructure**

No infrastructure except farm roads will be affected by mining activities.

The following equipment will be temporarily installed as part of the mining activities whereby it will be removed during the decommissioning phase.

1 x front-end loader

1 x Excavator

2 x 40ton ADT's

**Transport Bakkie**

Recovery Unit, c/w storage/transfer bins, sizing screen, conveyers, classifier

Water pump with pipeline

3 x 6 meters containers (offices, tea room, ablutions)

2 x 16 feet washing pan with conveyers

All temporary infrastructures, equipment and other items used during the proposed mining period will be removed from the site.

No ESKOM power is available on the site. All mining will be done with gensets.

**III. Rehabilitation**

The mining method involves a continuous backfilling open cast mining process. Topsoil will be stripped and hauled to already backfilled areas. If there are no backfilled areas available immediately, topsoil will be temporarily stockpiled on the surface for later use. No materials will be permanently dumped on the surface. Washed and screened material will be backfilled into the already mined out areas and will be covered with the overburden and topsoil that has been allocated for this purpose. The river portion will only be backfilled with coarse material to limit the sediments in the river.

On completion of the mining operation, the various surfaces, including the access road, the office area, storage areas and the plant site, will finally be rehabilitated as follows: All material on the surface will be removed to the original topsoil level where possible. This material will then be backfilled into the open pits. Any compacted area will then be ripped to a depth of 300mm, where possible, the topsoil or growth medium returned and landscaped. All infrastructures, equipment, plant, and other items used during the operational period will be removed from the site.

**Water****Surface Water**

The application area is within the Vaal River. Water will be abstracted from the Vaal River for the purpose of the mining operation. No waste material resulting from the proposed mining operation will be dumped or pumped into any source of surface water. No source of surface water will therefore intentionally in any way be affected by the proposed mining operation. All processing of the gravels will be done outside the 1:100 year floodline with permission from the Surface owners.

**Ground Water**

There are no boreholes that are known within the application area.

**Waste Management**

Proper sanitation facilities will be provided for employees. No person will pollute the workings with faeces or urine, misuse the facilities provided or inappropriately foul the surrounding environment with faeces or urine. Acceptable hygienic and aesthetic practices will be adhered to. Non-biodegradable refuse such as glass bottles, plastic

bags, etc. will be sorted and stored in separate lockable containers at a central point. It will be disposed of at a recognised disposal facility twice a month. Biodegradable refuse will either be handled as indicated, or be buried in a pit excavated for that purpose and covered with layers of soil when almost full. A final 0,5m thick layer of topsoil will be incorporated where practicable. Provision will be made for the future subsidence of the covering. Refuse will not be dumped in the vicinity of the mining area. Waste material with regard to vehicle repairs will be kept in 200 litres steel containers in the maintenance/farmstead area. This material will be disposed of at a recognised disposal facility once a month.

#### **Access Roads**

The property is accessed via the R31 tar road and the Gong-Gong gravel road, as well as tracks on the property. Activities associated with the Kimswa Mine that is expected to make use of these roads include:-

- o The transportation of mining personnel to and from the site;
- o Delivery of supplies and materials;
- o The transportation of the product for the market.

These transport operations will make use of passenger vehicles, light delivery vehicles and very limited heavy vehicles.

#### **Haul Roads**

There will be one Haul road to the plant area and one haul road to the mining site. No other haul roads will be constructed. Main haul roads will have a minimum width of 6m. No roads will be wider than 6m. Existing roads will be used as far as practically possible.



**e) Policy and Legislative Context**

**Table 2: Applicable legislation and guidelines used to compile the report**

Applicable Legislation and Guidelines used to compile the report <small>(a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process.)</small>	Reference where applied	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE POLICY AND LEGISLATIVE CONTEXT  (E.g In terms of the National Water Act:-Water Use License has/has not been applied for).
Conservation of Agricultural Resources Act (Act 43 of 1983) and Regulations (CARA)	<ul style="list-style-type: none"> <li>- Section 5: Implementation of control measures for alien and invasive plant species;</li> <li>- Section 6: Control measures.</li> <li>- Regulation GN R1048, published on 25 May 1984, in terms of CARA</li> </ul>	<ul style="list-style-type: none"> <li>- Control measures are to be implemented upon the approval of the EMPR.</li> </ul>
Constitution of South Africa (Act 108 of 1996)	<ul style="list-style-type: none"> <li>- Section 24: Environmental right</li> <li>- Section 25: Rights in Property</li> <li>- Section 27: Water and sanitation right</li> </ul>	<ul style="list-style-type: none"> <li>- To be implemented upon the approval of the EMPR.</li> </ul>
Environment Conservation Act (Act 73 of 1989) and Regulations (ECA)	<ul style="list-style-type: none"> <li>- Sections 21, 22, 25, 26 and 28: EIA Regulations, including listed activities that still relate to the existing section of ECA.</li> <li>- Section 28A: Exemptions.</li> </ul>	<ul style="list-style-type: none"> <li>- To be implemented upon the approval of the EMPR.</li> </ul>
Fencing Act (Act 31 of 1963)	<ul style="list-style-type: none"> <li>- Section 17: States that any person erecting a boundary fence may clean any bush along the line of the fence up to 1.5m on each side thereof and remove any tree standing in the immediate line of the fence. However, this provision must be read in conjunction with the environmental legal provisions relevant to protection of flora.</li> </ul>	<ul style="list-style-type: none"> <li>- Control measures are to be implemented upon the approval of the EMPR.</li> </ul>
Hazardous Substances Act (Act 15 of 1973) and Regulations read together with NEMA and NEMWA	<ul style="list-style-type: none"> <li>- Definition, classification, use, operation, modification, disposal or dumping of hazardous substances.</li> </ul>	<ul style="list-style-type: none"> <li>- Noted and Considered measures are to be implemented upon the approval of the EMPR.</li> </ul>
Inter-governmental Relations Act (Act	<ul style="list-style-type: none"> <li>- This Act establishes a framework for the National,</li> </ul>	

13 of 2005) Mine, Health and Safety Act (Act 29 of 1996) and Regulations	Provincial and Local Governments to promote and facilitate intergovernmental relations. - Entire Act.	- Control measures are to be implemented upon the approval of the EMPR.
Mineral and Petroleum Resources Development Act (Act 28 of 2002) and Regulations as amended	- Entire Act. - Regulations GN R527	- A Mining Right has been applied for (NC) 30/5/1/2/2/10144 MR. - Rights and obligations to be adhered to.
National Environmental Management Act (Act 107 of 1998) and Regulations as amended	<ul style="list-style-type: none"> <li>- Section 2: Strategic environmental management principles, goals and objectives.</li> <li>- Section 24: Foundation for Environmental Management frameworks.</li> <li>- Section 24N:</li> <li>- Section 24O:</li> <li>- Section 28: The developer has a general duty to care for the environment and to institute such measures to demonstrate such care.</li> <li>- Regulations GN R547, more specifically Chapters 5 and 7, where applicable (the remainder was repealed) published on 18 June 2010 in terms of NEMA (Environmental Management Framework Regulations)</li> <li>- Regulations GN R982 to R985, published on 4 December 2014 in terms of NEMA (Listed Activities)</li> <li>- Regulations GN R993, published on 8 December 2014 in terms of NEMA (Appeal)</li> <li>- Regulations GN R994, published on 8 December 2014 in terms of NEMA (exemption)</li> <li>- Regulations GN R205, published on 12 March 2015 in terms of NEMA (National appeal Amendment Regulations)</li> <li>- Regulations GN R1147, published on 20 November</li> </ul>	<ul style="list-style-type: none"> <li>- Control measures are to be implemented upon the approval of the EMPR.</li> </ul>

<p>National Environmental Management: Air Quality Act (Act 39 of 2004)</p>	<p>2015 in terms of NEMA (Financial Provision)</p> <ul style="list-style-type: none"> <li>- Section 32: Control of dust</li> <li>- Section 34: Control of noise</li> <li>- Section 35: Control of offensive odours</li> <li>- Regulation GN R551, published on 12 June 2015 (amended Categories 1 to 5 of GN 983) in terms of NEM:QA (Atmospheric emission which have a significant detrimental effect on the environment)</li> <li>- Regulation GN R283, published on 2 April 2015 in terms of NEM:QA (National Atmospheric Emissions Reporting Regulations) (Group C-Mines)</li> </ul>	<ul style="list-style-type: none"> <li>- Control measures are to be implemented upon the approval of the EMPR.</li> <li>- This is also legislated by Mine Health and Safety from DMR and is to be adhered to.</li> </ul>
<p>National Environmental Management: Biodiversity Act (Act 10 of 2004)</p>	<ul style="list-style-type: none"> <li>- Section 52 of The National Environmental Management Act: Biodiversity Act (NEMBA) (Act 10 of 2004) states that the MEC/Minister is to list ecosystems that are threatened and in need of protection.</li> <li>- Section 53 states that the Minister may identify any process or activity in such a listed ecosystem as a threatening process.</li> <li>- A list of threatened and protected species has been published in terms of Section 56(1) GG 29657 GNR 151 and GNR 152, Threatened or Protected Species Regulations.</li> <li>- Commencement of Threatened or Protected Species Regulations 2007 : 1 June 2007 GNR 150/GG 29657/23-02-2007</li> <li>- Publication of lists of critically endangered, vulnerable and protected species GNR 151/GG 29657/23-02-2007 *</li> </ul>	<ul style="list-style-type: none"> <li>- A permit application regarding protected plant species need to be lodged with DENC if any protected species is encountered. Control measures are to be implemented upon the approval of the EMPR.</li> </ul>

	<p>Threatened or Protected Species Regulations GNR 152/GG 296547/23-02-2007 *</p> <ul style="list-style-type: none"> <li>- Sections 65 – 69: These sections deal with restricted activities involving alien species; restricted activities involving certain alien species totally prohibited; and duty of care relating to alien species.</li> <li>- Sections 71 and 73: These sections deal with restricted activities involving listed invasive species and duty of care relating to listed invasive species.</li> <li>- Regulation GN R151, published on 23 February 2007 (List fo Critically Endangered, Vulnerable and Protected Species, 2007) in terms of NEM: BA</li> <li>- Regulation GN R152, published on 23 February 2007 (TOPS) in terms of NEM:BA</li> <li>- Regulations GN R507 to 509 of 2013 and GN 599 of 2014 in terms of NEM:BA (Alien Species)</li> <li>- Chapter 2 lists all protected areas.</li> </ul>	
<p>The National Environmental Management Act: Protected Areas Act (NEMPAA) (Act 57 of 2003) provides for the protection of ecologically viable areas that are representative of South Africa's natural biodiversity and its landscapes and seascapes.</p>		<ul style="list-style-type: none"> <li>- Not applicable. The mining operation does not fall within any protected area.</li> </ul>
<p>National Environmental Management: Waste Management Act (Act 59 of 2008)</p>	<ul style="list-style-type: none"> <li>- Chapter 4: Waste management activities</li> <li>- Regulations GN R634 published on 23 August 2013 in terms of NEM:WA (Waste Classification and Management Regulations)</li> <li>- Regulations GN R921 published on 29 November 2013 in terms of NEM:WA (Categories A to C – Listed activities)</li> </ul>	<ul style="list-style-type: none"> <li>- To be implemented upon the approval of the EMPR.</li> </ul>

	<ul style="list-style-type: none"> <li>- National Norms and Standards for the Remediation of contaminated Land and Soil Quality published on 2 May 2014 in terms of NEM:WA (Contaminated land regulations)</li> <li>- Regulations GN R634 published on 23 August 2013 in terms of NEM: WA (Waste Classification and Management Regulations)</li> <li>- Regulations GN R632 published on 24 July 2015 in terms of NEM: WA (Planning and Management of Mineral Residue Deposits and Mineral Residue Stockpiles)</li> <li>- Regulations GN R633 published on 24 July 2015 in terms of NEM: WA (Amendments to the waste management activities list published under GN921)</li> </ul>	
National Forest Act (Act 84 of 1998) and Regulations	<ul style="list-style-type: none"> <li>- Section 15: No person may cut, disturb, damage, destroy or remove any protected tree; or collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a licence granted by the Minister.</li> </ul>	<ul style="list-style-type: none"> <li>- A permit application regarding protected tree species need to be lodged with DAFF if necessary.</li> <li>- Control measures are to be implemented upon the approval of the EMPR.</li> </ul>
National Heritage Resources Act (Act 25 of 1999) and Regulations	<ul style="list-style-type: none"> <li>- Section 34: No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.</li> <li>- Section 35: No person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site.</li> <li>- Section 36: No person may, without a permit issued by SAHRA or a provincial heritage resources authority destroy, damage, alter, exhume, remove from its original position or</li> </ul>	<ul style="list-style-type: none"> <li>- Control measures are to be implemented upon the approval of the EMPR. Fossil finds procedure are attached to the PIA.</li> </ul>

	<p>otherwise disturb any grave or burial ground older than 60 years which is situated outside a forma cemetery administered by a local authority.</p> <p>Section 38: This section provides for HIA which are not already covered under the ECA. Where they are covered under the ECA the provincial heritage resources authorities must be notified of a proposed project and must be consulted during HIA process.</p> <p>Regulation GN R548 published on 2 June 2000 in terms of NHRA</p>	
<p>National Water Act (Act 36 of 1998) and regulations as amended, <i>inter alia</i> Government Notice No. 704 of 1999</p>	<ul style="list-style-type: none"> <li>- Section 4: Use of water and licensing.</li> <li>- Section 19: Prevention and remedying the effects of pollution.</li> <li>- Section 20: Control of emergency incidents.</li> <li>- Section 21: Water uses</li> </ul> <p>In terms of Section 21 a licence is required for:</p> <ul style="list-style-type: none"> <li>(a) taking water from a water resource;</li> <li>(b) storing water;</li> <li>(c) impeding or diverting the flow of water in a watercourse;</li> <li>(f) Waste discharge related water use;</li> <li>(g) disposing of waste in a manner which may detrimentally impact on a water resource;</li> <li>(i) altering the bed, banks, course or characteristics of a watercourse;</li> <li>(j) removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and;</li> </ul> <p>Regulation GN R704, published on 4 June 1999 in terms of the National Water Act (Use of water for mining and related activities)</p> <p>Regulation GN R1352, published on 12 November</p>	<ul style="list-style-type: none"> <li>- A water use application must be submitted and will be submitted as soon as the EIA EMP had been finalized.</li> <li>- Control measures are to be implemented upon the approval of the EMPR.</li> </ul>

	<ul style="list-style-type: none"> <li>- 1999 in terms of the National Water Act (Water use to be registered)</li> <li>- Regulation GN R139, published on 24 February 2012 in terms of the National Water Act (Safety of Dams)</li> <li>- Regulation GN R398, published on 26 March 2004 in terms of the National Water Act (Section 21 (j))</li> <li>- Regulation GN R399, published on 26 March 2004 in terms of the National Water Act (Section 21 (a) and (b) )</li> <li>- Regulation GN R1198, published on 18 December 2009 in terms of the National Water Act (Section 21 (c) and (i) – rehabilitation of wetlands)</li> <li>- Regulations GN R1199, published on 18 December 2009 in terms of the National Water Act (Section 21 (c) and (i) )</li> <li>- Regulations GN R665, published on 6 September 2013 in terms of the National Water Act (Amended GN 398 and 399 – Section 21 (e), (f), (g), (i))</li> </ul>	
Nature Conservation Ordinance (Ord 19 of 1974)	<ul style="list-style-type: none"> <li>- Chapters 2, 3, 4 and 6: Nature reserves, miscellaneous conservation measures, protection of wild animals other than fish, protection of Flora.</li> </ul>	<ul style="list-style-type: none"> <li>- Control measures are to be implemented upon the approval of the EMPR.</li> </ul>
Northern Cape Nature Conservation Act (Act 9 of 2009)	<ul style="list-style-type: none"> <li>- Addresses protected species in the Northern Cape and the permit application process related thereto.</li> </ul>	<ul style="list-style-type: none"> <li>- A permit application regarding provincially protected plant species as well as for large-scale harvesting of indigenous flora need to be lodged with DENC if necessary.</li> <li>- Control measures are to be implemented upon the approval of the EMPR.</li> </ul>
Occupational Health and Safety Act (Act 85 of 1993) and Regulations	<ul style="list-style-type: none"> <li>- Section 8: General duties of employers to their employees.</li> <li>- Section 9: General duties of employers and self-</li> </ul>	<ul style="list-style-type: none"> <li>- Control measures are to be implemented upon the approval of the EMPR.</li> </ul>

	employed persons to persons other than their employees.		
Road Traffic Act (Act 93 of 1997) and Regulations	- Entire Act.	- Control measures are to be implemented upon the approval of the EMPR.	
Water Services Amendment Act (Act 30 of 2007)	- It serves to provide the right to basic water and sanitation to the citizens of South Africa (giving effect to section 27 of the Constitution).	- Control measures are to be implemented upon the approval of the EMPR.	
National Land Transport Act, (Act 5 of 1998)		- To take note.	
Northern Cape Planning and Development Act (Act 7 of 1998)	- To control planning and development	- To be implemented upon the approval of the EMPR.	
Spatial Planning and Land Use Management (Act 16 of 2013 (SPLUMA) and regulations	- To provide a framework for spatial planning and land use management in the Republic; - To specify the relationship between the spatial planning and the land use management, amongst others - Regulations GN R239 published on 23 March 2015 in terms of SPLUMA	- To be implemented upon the approval of the EMPR.	
Subdivision of Agricultural Land Act, 70 of 1970 and regulations	- Regulations GN R373 published on 9 March 1979 in terms of Subdivision of Agricultural Land	- To take note.	
Basic Conditions of Employment Act (Act 3 of 1997) as amended	- To regulate employment aspects	- To be implemented upon the approval of the EMPR	
Community Development (Act 3 of 1966)	- To promote community development	- To be implemented upon the approval of the EMPR	
Development Facilitation (Act 67 of 1995) and regulations	- To provide for planning and development	- To take note.	
Development Facilitation (GN24, PG329, 24/07/1998)	- Regulations re Northern Cape LDO's	- To take note.	
Development Facilitation (GNR1, GG20775, 07/01/2000)	- Regulations re application rules S26, S46, S59	- To take note.	
Development Facilitation (GN732, GG14765, 30/04/2004)	- Determines amount, see S7(b)(ii)	- To take note.	



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Land Survey Act (Act 8 of 1997 ) and regulations, more specifically GN R1130	<ul style="list-style-type: none"> <li>- To control land surveying, beacons etc. and the like;</li> <li>- Agriculture, land survey S10</li> </ul>	<ul style="list-style-type: none"> <li>- To take note.</li> </ul>
National Veld and Forest Fire Act (Act 101 of 1998 ) and regulations, more specifically GN R1775	<ul style="list-style-type: none"> <li>- To regulate law on veld and forest fires (Draft regulations s21)</li> </ul>	<ul style="list-style-type: none"> <li>- To be implemented upon approval of the EMPR</li> </ul>
Municipal Ordinance, 20/1974	<ul style="list-style-type: none"> <li>- To control pollution, sewers etc.</li> </ul>	<ul style="list-style-type: none"> <li>- To be implemented upon approval of the EMPR</li> </ul>
Municipal Ordinance, PN955, 29/08/1975	<ul style="list-style-type: none"> <li>- Nature conservation Regulations</li> </ul>	<ul style="list-style-type: none"> <li>- To be implemented upon approval of the EMPR</li> </ul>
Cape Land Use Planning Ordinance, 15/85	<ul style="list-style-type: none"> <li>- To control land use planning</li> </ul>	<ul style="list-style-type: none"> <li>- To take note.</li> </ul>
Cape Land Use Planning Ordinance, PN1050, 05/12/1988	<ul style="list-style-type: none"> <li>- Land use planning Regulations</li> </ul>	<ul style="list-style-type: none"> <li>- To take note.</li> </ul>

**f) Need and desirability of the proposed activities**

(Motivate the need and desirability of the proposed development including the need and desirability of the activity in the context of the preferred location)

Taking into consideration all the information captured in this report, the most appropriate procedure for planning and developing the proposed mining operation will involve the following:

**(a) Mining Method**

The location of the mine is determined by the geological location of the mineral resource. This site has proven to have alluvial diamonds as it was mined before and left. Mining for alluvial diamonds by means of the method described, with the understanding that the formulation of an effective Environmental Management Programme and the implementation thereof, as well as the obtainment of an authorisation for the abstraction of water from a resource for mining purposes from the Department of Water and Sanitation in terms of the National Water Act, 1998 (Act No. 36 of 1998, is an inseparable part of the proposed operation.

**(b) Labour Force**

Employing people who originate from within the boundaries of Dikgatlong Municipality. This will guarantee benefits such as a positive contribution to the local economy; a decrease in local unemployment figures; a decrease in the social phenomena normally associated with unemployment, such as crime and alcohol abuse; and a positive contribution to cultural cohabitation.

**(c) Rehabilitation**

Making financial provision for the implementation of a rehabilitation strategy as is required by Section 41 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).

**(d) Environmental Monitoring**

Carrying out environmental monitoring on a regular basis, as is required by Regulation 55 of the Regulations published in Government Notice No. 26275 under the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) and in the NEMA regulations published 20 November 2015.

**(e) General**

Being open to possible comments, suggestions and complaints received from neighbouring communities or members of the general public that might result from the implementation of the proposed mining operation.

**g) Period for which the environmental authorisation is required**

5 years.

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

NBI! – This section is not about the impact assessment itself; it is about the determination of the specific site layout having taken into consideration (1) the comparison of the originally proposed site plan, the comparison of that plan with the plan of environmental features and current land uses, the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout as a result.

The location of the mine is determined by the geological location of the mineral resource. The application area has been disturbed by previous mining and is not a pristine site. The site has been mined and left, many years ago and some cofferdam walls is still visible where the old people made the river dry to work within the river.

**i) Details of the development footprint alternatives considered**

With reference to the site plan provided as Appendix 4 and the location of the individual activities on site, provide details of the alternatives considered with respect to:

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

The registered description of the land to which the mining right application relates:

<b>Farm Name</b>	<b>Title Deed</b>	<b>In Extent</b>
A portion of the Remainder of Pniel 281 and a portion of the Vaal River (Unsurveyed State Land) Province of the Northern Cape, Administrative District of Barkly-Wes	T432/2008 Republic of South Africa  Unsurveyed state land	112.1703ha

The property on which the Mining Right was granted is determined by the geological location of the mineral resource. Therefore, there are no alternatives for the location of the activity, except for not proceeding with the operation. This will however cause the underutilisation of a national economic resource.

The area is accessible via gravel roads from different directions.

Infrastructure in the Dikgatlong area is well developed with good road and rail networks, electricity grid and water. Experienced labour is available in the area as is an extensive network of secondary industries geared towards small and large-scale diamond mining. Water for Processing Plant will be a crucial element that needs to be secured towards the successful operating of the project. A water application will be submitted to the Department of Water and Sanitation which will include a Section 21 (l) and (c ) application.

**Alternatives considered:-**

As the area covered under the Mining Right had been selected based on the assumption of alluvial gravels and indication of the presence of alluvial gravels, it will not be viable to consider an alternative site for the mine. Alternatives for land are thus not available, as the mining right application can not be considered over another area.

Therefore there are no alternatives to the area.

**(a) The type of activity to be undertaken:**

The planned mining technique is that of a typical South African opencast block alluvial diamond operation. The planned mining method is a Opencast block mining process with oversize material from the gravel scalping and the tailings from the plant, being used as backfill material prior to final rehabilitation. Gravels are excavated, loaded and transported to the nearby treatment facility using articulated dump trucks.

**Alternatives considered:-**

There are no alternative land use as the application area is within the Vaal River; however the applicant's main economic activity is mining and for this reason does not favour any other alternative land use.

**(b) The design or layout of the activity:**

The site infrastructure will need to be strategically placed by incorporating mining project demands and environmental sensitivities identified during the Environmental Impact Assessment process. Thus, the site layout will primarily be based on proximity to the nearby access roads, proximity to the areas earmarked for mining as well as limited additional impact on the environmental (non-perennial drainage lines, the river and wind direction), heritage resources and discussions with the relevant Departments.

The following infrastructure will be established and will be associated with the mining operation outside the 1:100 year floodline zone with permission of the relevant Department and surface owners:

- Processing Plant : 2 X 16 feet
- Ablution Facilities: In terms of sewage the decision was made to use chemical toilets which can be serviced regularly by the service provider.
- Clean & Dirty water system: Berms  
It is anticipated that the operation will establish stormwater control berms and trenches to separate clean and dirty water on the mine site.
- Fuel Storage facility (Concrete Bund walls and Diesel tanks):  
It is anticipated that the operation will utilize 2 x 23 000 litre diesel tanks. These tanks must be placed in bund walls, with a capacity of 1.5 times the

volume of the diesel tanks. A concrete floor must be established where the re-fuelling will take place.

- Mining Area: Opencast mining to mine for alluvial diamonds.
- Processing plant: 2 X 16 feet pan with conveyers and recovery
- Roads (both access and haulage road on the mine site):  
Although it is recommended that the operation utilize existing roads as far as possible, it is anticipated that the mining operation will create an additional 2 - 4 km of roads, with a width of 6 meters.
- Salvage yard (Storage and laydown area).
- Product Stockpile area.
- Waste disposal site  
The operation will establish a dedicated, fenced waste disposal site with a concrete floor and bund wall. The following types of waste will be disposed of in this area:
  - Small amounts of low level hazardous waste in suitable receptacles;
  - Domestic waste;
  - Industrial waste.
- Temporary Workshop Facilities and Wash bay.
- Water distribution Pipeline.
- Water tank :  
It is anticipated that the operation will establish 1 x 10 000 litre water tanks with purifiers for potable water.

#### **Alternatives considered:-**

Alternatives for fuel storage include surface storage, underground storage and the storage of fuel in mobile tanks with a metal bund wall. Underground storage has an adverse negative pollution potential, because it is not easy to monitor leakages. Remediation measures are also not as effective as compared to surface storage tanks. Mobile tanks are a viable option for infield screening activities, but the best viable long term option is the installation of fuel tanks within a concrete bund wall. The final location of the fuel storage tanks will be determined based on proximity to site operations.

In terms of water use alternatives; the operation is located within the Vaal River. Plastic pipelines are considered to be the best long term option for transferring water, due to their temporary nature which causes minimum environmental disturbances.

Therefore, a pipeline route will be designed based on the principle of minimum impacts to the environment.

In terms of power generation the options available was for Generators or ESKOM power. All of the electricity needs for the operations will be generated by a diesel generator and there would therefore be no additional pressure on the Eskom Electricity Grid.

In terms of sewage the decision was made to use chemical toilets which can be serviced regularly by the service provider.

**(c) The technology to be used in the activity:**

- **Technique**

The area will be excavated (opencast method) with an excavator up to bedrock, stockpiled next to an open area and loaded onto the trucks by a frond end loader. The trucks will transport the gravel via a newly constructed road, which will be constructed to the required safety standard. No provincial roads will be used.

At the processing plant the run of mine will be fed onto a grizzly for the screening out oversize material. The gravel will be processed through a screening section for delivery to a recovery plant and associated equipment. In terms of the processing it should take place outside the 1:100 year floodline and a processing area will be negotiated with the Pniel CPA. This area will be used for all processing and stockpiling operations with an agreement entered into with the relevant Department).

- **Technology**

At the processing plant the run of mine will be fed onto a grizzly for the screening out oversize material. The gravel will be processed through a screening section for delivery to a recovery plant and associated equipment. In terms of the processing it should take place outside the 1:100 year floodline and a processing area will be negotiated with the Department. This area will be used for all processing and stockpiling operations with an agreement entered into with the Pniel CPA).

**Alternatives considered:-**

The planned mining activities include (opencast method) with an excavator up to bedrock. The operation is also associated with processing techniques that make use of modern technologies. These are the most economic viable method currently being used by the diamond fraternity. There is no other feasible, alternative mining method for the mining and extraction of alluvial diamonds.

**(d) The operational aspects of the activity:**

The gravels will be loaded with an excavator on to dump trucks for conveyance to the Processing Plant. At the Processing Plant the run of mine gravels will be fed onto a grizzly for screening out oversize material. The material will be processed through a screening section for delivery to a recovery plant. Concentrate from the recovery plant will be processed through an X-Ray/Sortex plant to extract the diamonds. Another area will be used for all processing and dumping operations outside the 1:100 year floodline. The expected lifespan of the mine is 5 years.

Mining activities will primarily make use of existing roads created by previous mining activities, but there is a possibility for additional roads that could be created.

**Alternatives considered:-**

The conventional opencast load-haul-mining method has been proven to be the most economic viable method currently being used by the diamond fraternity. There is no other feasible, alternative mining method for the mining and extraction of alluvial diamonds.

**(e) The option of not implementing the activity:**

Potential land use is a river channel and mining. Therefore, mining activities are believed to be the most economically beneficial option for the area.

Mining forms an integrated part of the social and economical growth of South Africa and more specifically the Northern Cape Province.

***Socio-Economy***

The operation will make provision for 10 job opportunities. This will be lost if the project does not proceed. Substantial tax benefits to the State and Local Government will also be lost.

***Biodiversity***

The majority of the relevant area is covered by water, a specialist aquatic and biodiversity study will be done on the area to establish if any protected species is existing on the area.

The mobility and in many cases the adaptability of many bird species has meant that they more than any other vertebrate group have taken advantage of many of the changes we have brought about in the environment.

***Heritage and Cultural Resources***

No information is available on any heritage features on the area of application and the necessary specialist studies will be done to be included into the EIA/EMP documents.

Should any other heritage features and/or objects be located or observed, a heritage specialist will be contacted immediately. Observed or located heritage features and/or objects may not be disturbed or removed in any way until such time that a heritage specialist has been able to make an assessment as to the significance of the site (or material) in question. If the mining operation is

approved, the heritage resources if any other had been encountered will be protected through the demarcation of no-go zones and fencing off.

## II) Details of the Public Participation Process Followed

Describe the process undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings. (Information to be provided to affected parties must include sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land.

Description of the consultation process:-

- Notification letters were sent to all interested and/or affected parties on the 31 October 2018. Attached to each of these letters was a Background Information Document (BID), containing information relating to proposed project.
- A newspaper advert was placed in the DFA (Diamond Fields Advertiser) local newspaper on the 1 November 2018.
- Notices were also placed at the Gong Gong clinic, Shop, Kelsikama cemetery, Gong Gong cemetery.
- Meeting will be held with the Department responsible for state land and the Priel CPA.
- Comments or replies received will be handled individually.

Proof of notification and consultation is attached as Appendix 3. The consultation process is still in process.

The draft Scoping and Environmental Impact Assessment will be circulated to all registered interested and affected parties.



### Summary of issues raised by I&APs

(Complete the table summarising comments and issues raised, and reaction to those responses)

**Table 3: Consultation with I&APs**

Interested and Affected Parties	Date Comments Received	Issues Raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated
<p>List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted</p> <p><b>AFFECTED PARTIES</b></p>				
<p>Landowner's</p> <p>Department of Public Works National and provincial P.O. Box 1831 Kimberley 8300</p>	<p>X</p> <p>X Registered letter 31 October 2018</p>			
<p>National Dept. of Public Works Private Bag X5002 Kimberley 8300</p>	<p>6 November 2018</p> <p>X Registered letter 31 October 2018</p>	<p>Good Day</p> <p>With regard to the above mentioned application, please be advised that the State property is under the administration of the Department of Rural Development and Land Reform and they can be contacted at New Public Offices (8th Floor), Knight Street, Kimberley. Any documents should be sent to Mr K Moeketsi (Kgotso.moeketsi@drdlr.gov.za) and Mr Itumeleng Mashune (Itumeleng.mashune@drdlr.gov.za).</p> <p>Rgds</p> <p>Faizal Paulsen</p> <p>Department of Public Works</p> <p>Property Management</p> <p>Private Bag X5002</p> <p>Kimberley</p> <p>8300</p> <p>Tel 053 8385324</p>	<p>Dear Mr. Paulsen</p> <p>With reference to your mail. Thank you for the response. The Department of Rural Development and Land Reform has also received the notification, and will also receive all follow up documentation.</p> <p>We hope and trust the above would be to your satisfaction.</p>	

Lawful occupier/s of the land	There are no lawful occupiers.	Landowners or lawful occupiers on adjacent properties							
Sydney on Vael CPA PO Box 608 Kimberley 8300		X	Registered letter 31 October 2018						
Chris Potgieter PO Box 904 Wolmaranstad 2630		X							
Municipal Councillor Municipality		X							
Dikgatlong Municipality Private Bag X5 Barkly-Wes 8375		X	Registered letter 31 October 2018						
Frances Baard District Municipality Private Bag X5 Kimberley 8300		X	Registered letter 31 October 2018						
Organs of State (Responsible for Infrastructure that may be affected Roads Department, Eskom, Telikom, DWS SANRAL P.O. Box 415 Pretoria 0001 Transnet PO Box 32696 Braamfontein 2017									
Department of Agriculture, Forestry & Fisheries Directorate: Forestry Management P.O. Box 2762 Uplington 8600		X	Registered letter 31 October 2018						
Dept. of Agriculture, Land		X							

Fax 053 833 115

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Reform & Rural Development Private Bag X5108 Kimberley 8300	Registered letter 31 October 2018				
Department of Rural Development and Land Reform Private Bag X5007 Kimberley 8300	X Registered letter 31 October 2018				
ESKOM Holdings SOC Limited Northern Cape Operating Unit Land Development P.O. Box 606 Kimberley 8300	X Registered letter 31 October 2018				
Eskom Division PO Box 356 Bloemfontein 9300	X Registered letter 31 October 2018				
Department of Water & Sanitation Private Bag X6101 Kimberley 8300	X Registered letter 31 October 2018				
SAHIRA P.O. Box 4637 Cape Town 8000	X Registered letter 31 October 2018				
Northern Cape Department of Roads and Public works PO Box 3132 Squarehill Park Kimberley 8300	X Registered letter 31 October 2018			Load documents on SAHRIS 31 October 2018	
Communities Sydney on Vaal CPA PO Box 609 Kimberley 8300	X Registered letter 31 October 2018	12 November 2018	Take all documents by hand and they sign for it.		
Gong-Gong CPA	X Information given by hand				

Dept. Land Affairs Department of Land Affairs and Rural Development Private Bag X5018 Kimberley 8300	X Registered letter 31 October 2018			
Traditional Leaders No Traditional Leaders				
Dept. Environmental Affairs				
Dept. of Environment & Nature Conservation Private Bag X8102 Kimberley 8300	X Registered letter 31 October 2018			
Other Competent Authorities affected				
<b>OTHER AFFECTED PARTIES</b>				
<b>INTERESTED PARTIES</b>				

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

**(1) Baseline Environment**

**(a) Type of environment affected by the proposed activity**

(Its current geographical, physical, biological, socio-economic, and cultural character)

**(1) GEOLOGY:**

Alluvial gravels, extending from the Kimberley to Barkly West to Prieska districts along the Orange, Vaal, Harts and Riet Rivers and on the Northern and Western Cape coasts, yield diamonds commonly of a better quality than those found in the original kimberlite. The early diamond rushes at Hopetown and near Kimberley, were followed by a succession of rushes to alluvial diamond fields further northwards and what is now known as the North West Province. Examples were those in the 1920s and 1930s at Kimberley, Bakerville and the Mafikeng district.

Despite having been the hub of the world diamond industry for over a hundred years, Kimberley remains the centre of one of the most exciting exploration provinces anywhere. The Kimberley region is well known for its high quality gemstones and is generally regarded as a priority target for the discovery of large stones. Extensive areas of terrace gavels flanking a number of important rivers have yet to be fully evaluated; and known diamondiferous kimberlite pipes and fissures await the application of modern mining and processing technology.

Alluvial deposits in this region are well known for their high quality gemstones, both in terms of size and quality, with a regional average value of about US\$ 600 to 1500 per carat. These deposits are amenable to low cost opencast mining and are situated in a region with excellent infrastructure.

**Alluvial Geology of the Kimberley Area**

The erosion of diamondiferous kimberlites liberates diamonds onto the land surface, for redistribution by streams and rivers. The processes that lead to the deposition and concentration of diamond in river sediments are obviously of direct importance in the formation of economic alluvial diamond deposits (or diamond placers).

The South African alluvial deposits are distributed in a southwest-trending belt that stretches from the Limpopo River to the Namaqualand coast. The major deposits are concentrated along the Vaal and Orange River valleys and some tributaries of the Vaal River. The deposits invariably consist of gravel resting on Precambrian bedrock. This bedrock contains trap sites for diamonds in the form of scour channels, potholes, gulley's and plunge pools, and in all cases, its competence and irregularity is sufficient to trap coarse debris that, in turn, act to entrain diamonds.

The bedrock comprises a wide variety of rock types, including granite, gneiss, lava, dolomite, tillite, shale and quartzite, and cross-cutting dykes perpendicular to the fluvial channels and paleo channels are important in the development of trap sites.

The diamonds were originally derived from kimberlites on the Kalahari Craton, mostly within South Africa and transported by rivers to their placer sites. Many of these placers were subsequently reworked during the Cenozoic and redeposited as younger placers in downstream locations.

The paucity of alluvial placers on the Karoo Supergroup is due to the fact that the horizontally bedded sedimentary rocks are generally insufficiently lithified for the formation of trap sites, except where dolerite intrusions are present. Where rivers and palaeo-rivers leave the Karoo base along the northern rim of the Karoo Basin, and encounter the pre-Karoo surface, especially where this is composed of Ventersdorp Supergroup rocks, significant placer development occurs.

The age of the alluvial placers ranges from Late Cretaceous to Quaternary with depositional peaks coinciding with fluvial phases during the Late Cretaceous, Miocene and Plio-Pleistocene. These ages post-date the emplacement of all the diamondiferous kimberlites on the Kalahari Craton from which the diamonds were derived. As a result of erosion during the Cenozoic era, only six Late Cretaceous placers are preserved. These comprise Droogeveld, 25 km west-northwest of Barkly West, which is placer gravel in bedrock-bounded channels of a paleo-Vaal River and Nooltgedacht, 15 km southeast of Barkly West which is unrelated to the paleo-Vaal drainage and represents colluvial gravel that contains diamonds, which were directly eroded and washed from the nearby Kimberley pipes.

Deposits of Miocene, Pliocene and Pleistocene age occur along the Vaal River valley between Christiana and Douglas and along the Orange River valley between Hopetown and Prieska. These deposits are

located at elevations between present river level and 120m above present river levels.

The diamonds were probably transported from kimberlites located near Kroonstad, Welkom, Theunissen, Boshof, Koffiefontein, and in northern Lesotho via former drainage courses of the Vals, Vet, Riet and Orange Rivers and a so-called Kimberley River that tapped the Boshof kimberlites prior to being captured by the Modder River during the Pliocene. The deposits are relatively small but numerous large stones have been produced from these gravels with a 511-carat stone from Nooitgedacht near Barkly West the largest. Diamond grades vary between 0.1 and 2 carats per hundred tonnes (cpht).

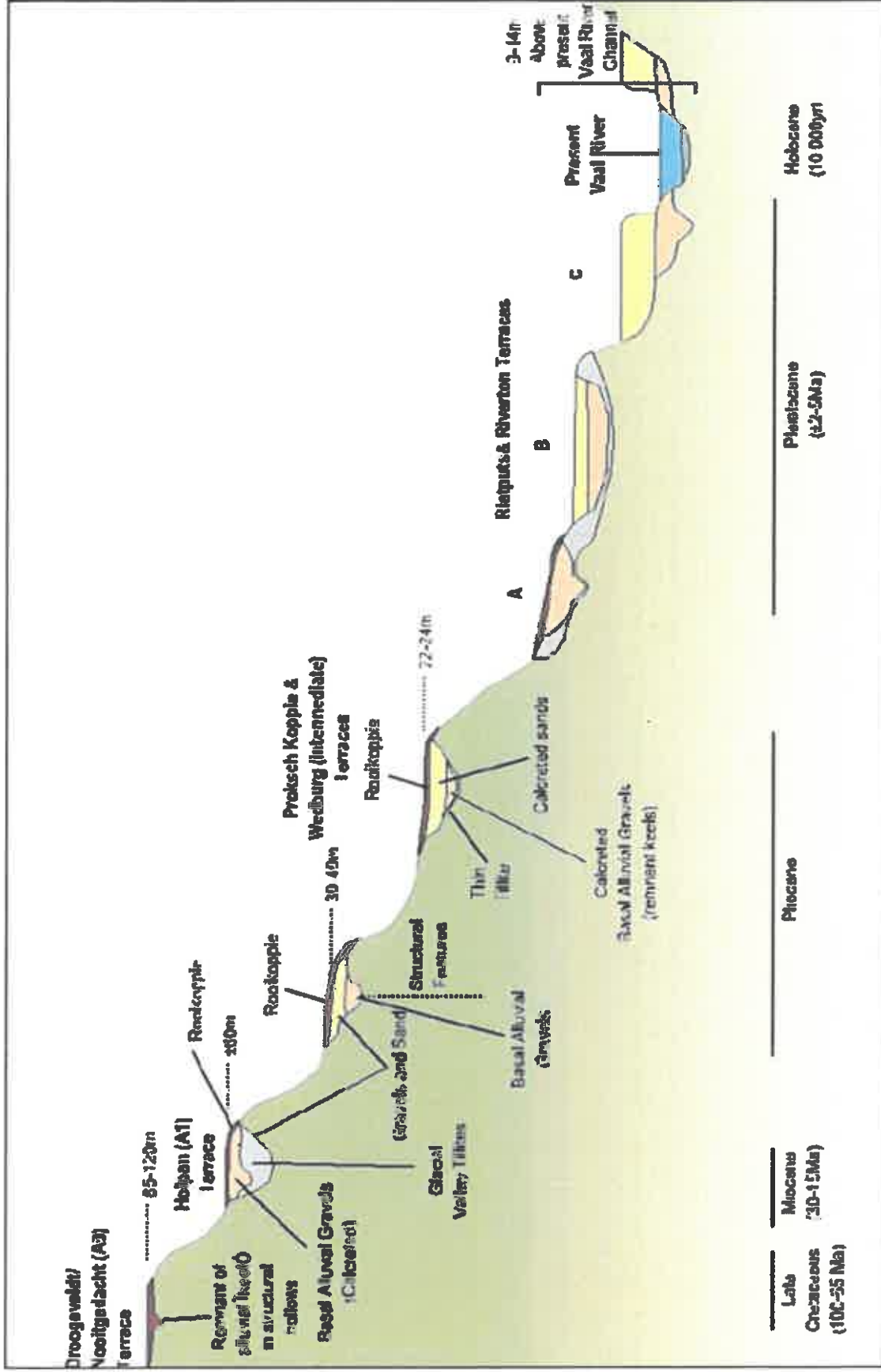


Figure 3: The age of the alluvial placers ranges from Late Cretaceous to Quaternary with depositional peaks coinciding with fluvial phases during the Late Cretaceous, Miocene and Plio-Pleistocene



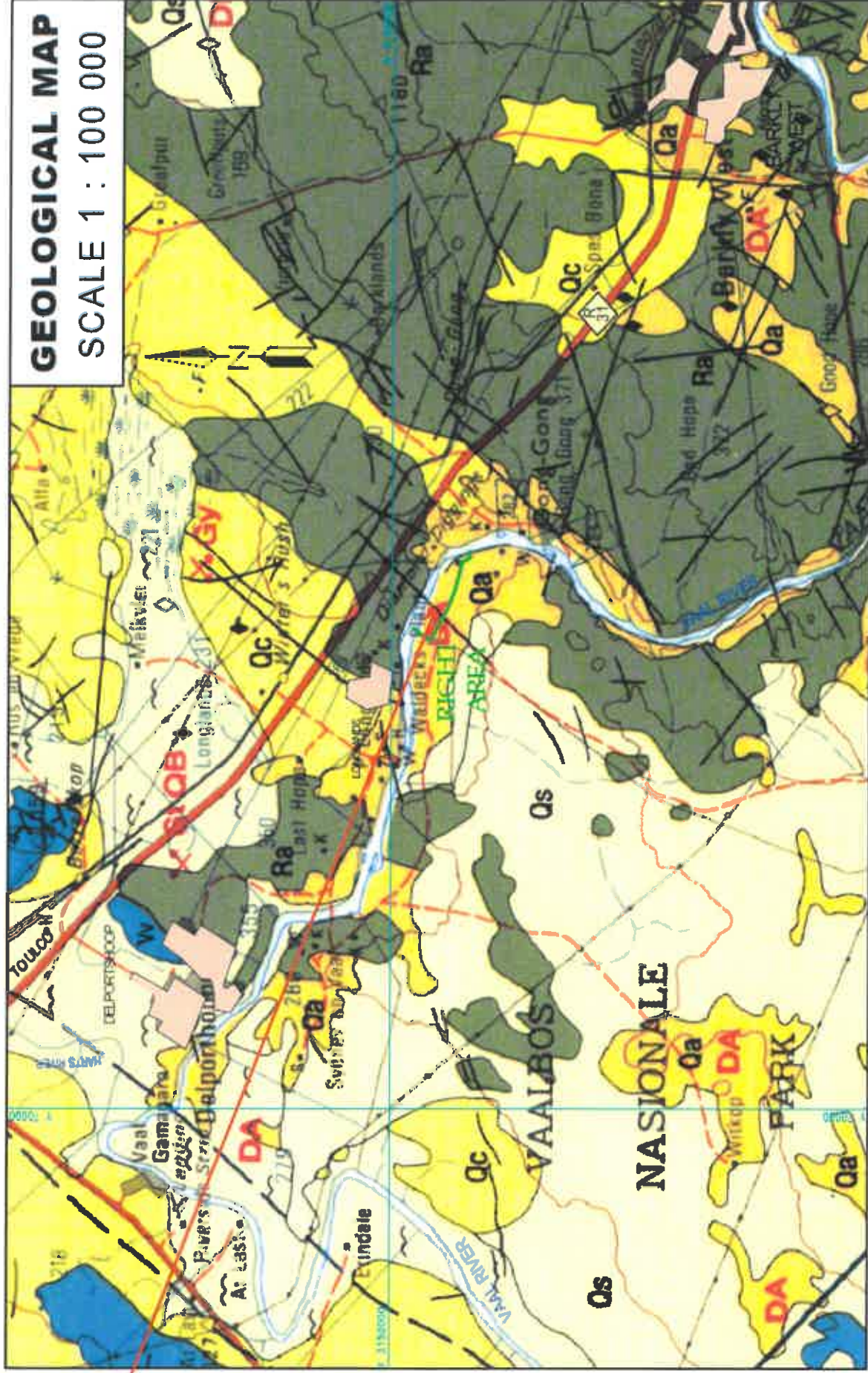


Figure 4 : Geological Map application area indicated with red arrow.

LITHOLOGY LITOLOGIE		ECONOMIC DATA EKONOMIESE GEGEWENS	
Qa	Alluvial diamondiferous gravel Alluviale diamantdraende gruis		
Qc	Calcrete, calcified pedunc and surface limestone Kalkroet, verkalkte panduin en oppervlakkalksteen	X	Mine in production Myn in produksie
~	Alluvium and scree Alluvium en glooiingspuin		X
Qs	Sand: Red and grey eolian dune sand Sand: Rooi en grys eoliese duinsand	DA	Limestone Kalksteen
	Kimberlite pipe ( ◊ ), fissure ( -◊- ) Kimberlityp ( ◊ ), -spies ( -◊- )	DK	Salt Sout
Jd	Dolerite: dolerite dyke shown as ( —◊— ) Doleriet: dolerietgang aangetoon deur ( —◊— )	DK	Na
Pa	Mudstone, sandstone Moddersteen, sandsteen	GPp	QB
Ppr	Shale Skalle	Gy	Building Sand Bousand
Pt	Shale, siltstone, sandstone Skalle, siltsteen, sandsteen	He	St
Pw	White-weathering carbonaceous shale Witverwerende koolstofhoudende skalle		Stone aggregate Klipaggregaat
C-Pd	Tillite, sandstone, mudstone, shale Tillel, sandsteen, moddersteen, skalle		Heilum Heilum
			To
			Torbanite/Oil shale Torbaniet/Olieskalle

(2) CLIMATE:

**Regional Climate:-**

The Northern Cape is classified as a semi-desert and is known to have summer rains with high temperatures in the Summer (as high as 38°C to 40°C) and cold Winters (temperatures ranging from -4°C to -6°C). The sun shines approximately 80% during Summer and approximately 70% during the Winter.

**Average Annual Rainfall:-**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Ave rainfall (mm)	77	69	67	40	17	6	5	10	19	38	55	60	463
Ave rain days/month	6.5	5.7	6.2	4	1.6	0.9	0.8	1	1.6	3.5	5.2	5.9	43

**Rainfall Intensity:-**

Most of the rainfalls occur during thunderstorms in the Summer months as well as during cloud bursts where maximum rainfalls were measured of up to 112.5mm at a downpour of approximately 60 minutes.

**Average Maximum and Minimum Temperatures:**

The average maximum temperature measured during the Summer is 30.9°C and the minimum during the Winter months is 3.4°C.

**Average Monthly Wind Direction and Speed:-**

The prevailing wind direction in the area is mainly from the north to north-westerly with the strongest winds from the west-southwest to north-northwest that occurs between August and December. October and November month are common for high wind speeds of up to 4.85 metres per second.

***Average Monthly Evaporation:-***

It is estimated that the average annual evaporation rate is approximately 2365mm which indicates the dry climate conditions in this area.

***Presence of Extreme Climatic Conditions:-***

Hail:	October to March
Frost:	May to September
Strong Winds:	Occasional strong winds occur but not often
Droughts:	Normal for a dessert area – approximately 6 out of 10 years

(3) TOPOGRAPHY:

The area lies below 1060 m above sea level and can be classified as the Vaal River.

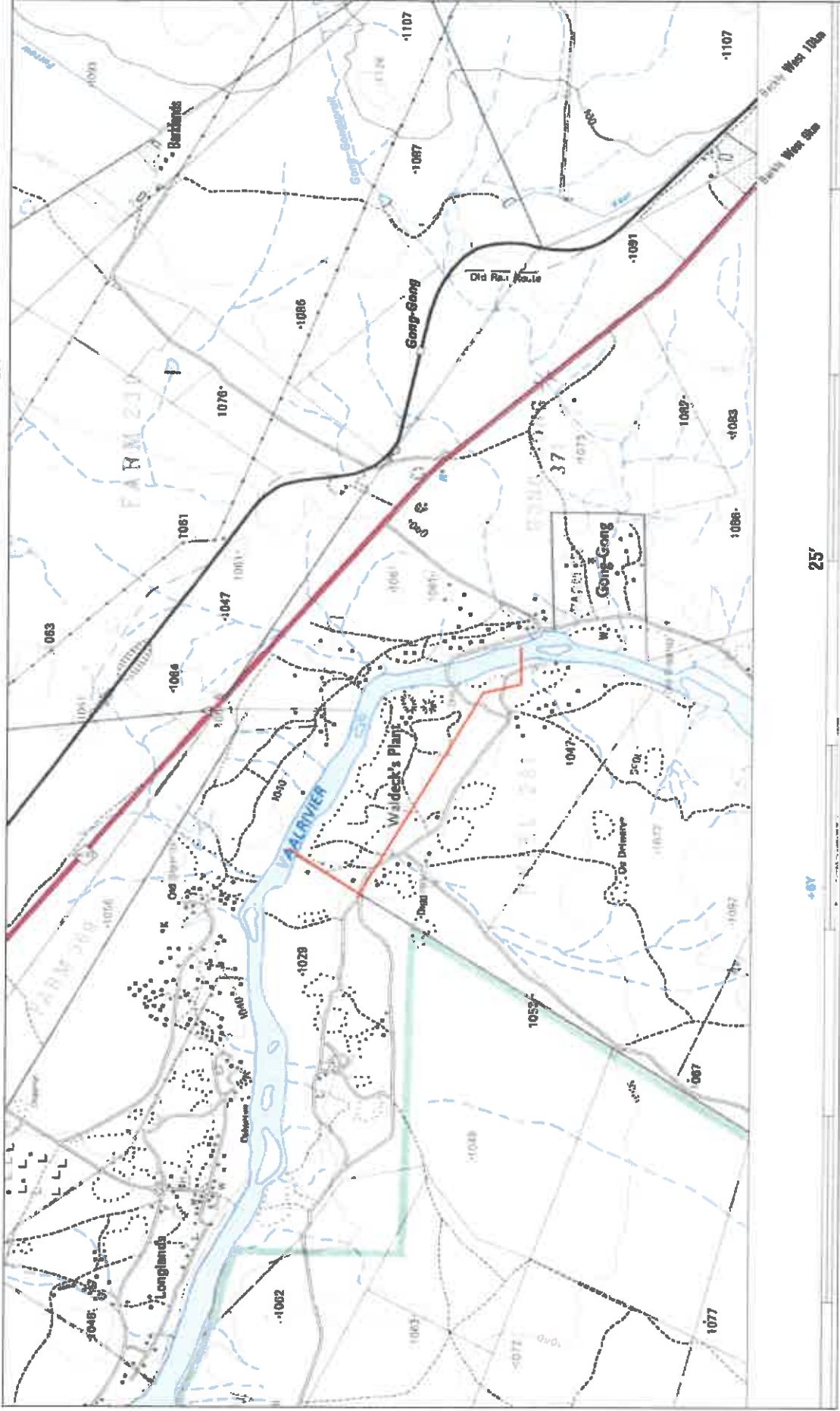


Figure 5 : Topographical Map Delpoortshoop 2824AD 1:50 000 application area indicated by red arrow.

**(4) SOILS:****Soil Types**

The banks of the Vaal River consist of the silt-clayey soil (Oakleaf soil form) while the soil of debris of old diamond diggings is very disturbed. The soil type varies from deep to shallow Hutton form as well as Mispah soil form.

**(5) LAND CAPABILITY AND LAND USE:**

The Vaal River channel is the way of right for the river flow. Although some arable land exists along the river areas, it is not currently used for any type of agriculture.

Once the alluvial gravels are being totally reclaimed and the footprint areas properly being rehabilitated, some vegetation cover will be established. This will allow for some beneficial use of the property after some time.

**(6) NATURAL FAUNA:****Commonly occurring species:****Amphibians**

A species checklist was compiled from literature for the area to ascertain if there are any amphibian species of special concern known to occur in and around the area. Only six species of amphibians are known to occur within this area and none of these species are listed as species of special concern.

<b>SPECIES</b>	<b>COMMON NAME</b>
<i>Rana fuscigula</i>	Cape River Frog
<i>Xenopus laevis</i>	Common Platanna
<i>Pyxicephalus adspersus</i>	Giant Pyxie
<i>Bufo gutturalis</i>	Guttural Toad
<i>Bufo garlepenis</i>	Karoo Toad
<i>Cacosternum boettgeri</i>	Common Caco

List of Amphibians known to occur in and around the proposed mining area.

**Reptiles**

A species checklist was compiled from literature for the area to ascertain if there are any reptile species of special concern known to occur in and around the area. Of the 34 species identified only one, the Rock Monitor is considered to be a species of special concern as it is listed as Vulnerable in the Red Data Book.

SPECIES	COMMON NAME	STATUS
<i>Psammobates oculifer</i>	Kalahari Tent Tortoise	
<i>Geochelone pardalis</i>	Leopard Tortoise	
<i>Pelomedusa subrufa</i>	March Terrapin	
<i>Typhlops lalandei</i>	Delalande's Blind Snake	
<i>Dispholidus typus</i>	Boomslang	
<i>Lamprophis fuliginosus</i>	Brown House Snake	
<i>Lycophidion capense</i>	Cape Wolf Snake	
<i>Dipsina multimaculata</i>	Dwarf Beaked Snake	
<i>Naja nivea</i>	Cape Cobra	
<i>Crotaphopeltis hotamboela</i>	Herald Snake	
<i>Dasypeltis scabra</i>	Common Egg Eater	
<i>Psammophis trinasalis</i>	Fork-marked Sand Snake	
<i>Psammophis notostictus</i>	Karoo Sand Snake	
<i>Pseudaspis cana</i>	Mole Snake	
<i>Bitis ardentans</i>	Puff Adder	
<i>Monopeltis capensis</i>	Cape Spade-snouted Worm Lizard	
<i>Zygaspis quadrifrons</i>	Kalahari Round-headed Worm Lizard	
<i>Mabuya capensis</i>	Cape Skink	
<i>Mabuya spilogaster</i>	Kalahari Tree Skink	
<i>Mabuya variegata</i>	Variegated Skink	
<i>Mabuya punctulata</i>		
<i>Mabuya sulcata</i>	Western Rock Skink	
<i>Mabuya occidentalis</i>	Western Three-striped Skink	
<i>Cordylus polyzonus</i>	Karoo Girdled Lizard	
<i>Meroles suborbitalis</i>	Spotted Desert Lizard	
<i>Pedioplanis lineocellata</i>	Spotted Sand Lizard	
<i>Pedioplanis namaquensis</i>	Namaqua Sand Lizard	
<i>Nucras tessellata</i>	Striped Sandveld Lizard	
<i>Varamus niloticus</i>	Nile Monitor	
<i>Varamus exanthematicus</i>	Rock Monitor	Vulnerable
<i>Agama anchietae</i>	Southern Rock Agama	
<i>Agama atra</i>	Ground Agama	
<i>Chamaeleo dilepis</i>	Flap-neck Chamaeleon	
<i>Pachydactylus bibronii</i>	Bibron's Gecko	
<i>Pachydactylus capensis</i>	Cape Gecko	

List of reptiles known to occur in and around the proposed mining area.

### Birds

Although a few birds are commensal, rapidly and successfully adapting to modified environments, the majority of birds are sensitive to disturbance and either migrate away from, or suffer greater mortality within, degraded habitats. Due to their ability to fly away they are however tolerant of low levels of disturbance. An extensive bird life is found on the mine despite the disturbances caused by mining.

### Mammals

Mammals within the study area include the following:

COMMON NAME	SCIENTIFIC NAME	STATUS
Vervet monkey	<i>Cercopithecus aethiops</i>	
Chaema baboon	<i>Papio ursinus</i>	
Cape hare	<i>Lepus capensis</i>	
Scrub hare	<i>Lepus saxatilis</i>	
Ground squirrel	<i>Xerus inausis</i>	
Springhare	<i>Pedetes capensis</i>	
Porcupine	<i>Hystrix africaeaustralis</i>	
Bat-eared fox	<i>Otocyon</i>	
Black backed jackal	<i>Canis mesomelas</i>	
Striped polecat	<i>Ictonyx striatus</i>	
Cape clawless otter	<i>Aonyx capensis</i>	Unknown
Suricate	<i>Suricata suricatta</i>	
Yellow mongoose	<i>Cnictis penicillata</i>	
Slender mongoose	<i>Calerella sanguinea</i>	
Aardwolf	<i>Proteles cristatus</i>	Rare
Brown hyaena	<i>Hyaena brunnea</i>	
Leopard	<i>Panthera pardus</i>	
Caracal	<i>Felis caracal</i>	
African wild cat	<i>Felis lybica</i>	Vulnerable
Ant bear	<i>Orycteropus afer</i>	Vulnerable
Warthog	<i>Phacochoerus aethiopicus</i>	
Common duiker	<i>Sylvicapra grimmia</i>	
Steenbok	<i>Raphicerus</i>	
Springbok	<i>Antidorcus marsupialis</i>	
Kudu	<i>Tragelaphus strepsiceros</i>	

### Mammal checklist obtained from SANPARKS

List of mammals known to occur in the study area

### Endangered or rare species:

Eight Species of special concern have been identified according to the Red Data Book – Birds (Barnes, Keith 2000), and include:

COMMON NAME	SCIENTIFIC NAME	CONSERVATION STATUS
Greater flamingo	<i>Phoenicopterus ruber</i>	Near threatened
Lesser flamingo	<i>Phoenicopterus minor</i>	Near threatened
Secretary bird	<i>Asagittarius serpentarius</i>	Near threatened
White backed vulture	<i>Gyps africana</i>	Vulnerable
Lappet faced vulture	<i>Torgos tragelotus</i>	Vulnerable
Tawny eagle	<i>Aquila rapax</i>	Vulnerable
Martial eagle	<i>Polemaetus bellicosus</i>	Vulnerable
Kori bustard	<i>Adreotis kori</i>	Vulnerable

List of red data list birds known to occur in and around the proposed mining area.

No species is limited to this site only, with most of them being generalist and having a wide distribution range. However, reasonable measure must be put in place to protect endangered and protected species if they are encountered on this site.

The mobility and in many case the adaptability of many bird species has meant that they more than any other vertebrate group have taken advantage of many of the changes we have brought about in the environment.

As this site and the fact that this area is within the river there is a possibility that some habitats can be destroyed although most wildlife will probably immigrate to adjacent undisturbed land.

(7) NATURAL VEGETATION:

The proposed mine is located in the Kimberley Thorn Bushveld (Low and Rebelo 1996) (Savanna Biome) (Veld Type 32). This vegetation type covers approximately 271 026 km<sup>2</sup> of which 55% of this vegetation type is transformed and less than 3% is currently conserved (the conservation figures have changed owing to the de-proclamation of Vaalbos however the New National Park is also situated in the Kimberley Thorn Bushveld).

This vegetation type is characterised by an open savannah with Umbrella Thorn *Acacia tortilis* and Camel Thorn *Acacia erioloba* forming the dominant tree species, with scattered individuals of *Boscia albitrunca* and the Sweet Thorn *Acacia karroo*. The shrub layer is poorly to moderately developed in places and individuals of the Camphor tree *Tarchonanthus camphoratus* Black Thorn *Acacia mellifera*, Wild raisin *Grewia flava* and *Lysium hirsutum* occur widely scattered. The grass layer is fairly well developed and grasses such as Redgrass *Themeda triandra* common Nine awn *Ennapogon cenchroides*, Lehmanns love grass *Eragrostis lehmanniana*, *Ellodnuris muticus* and *Cymbopogon Plurinodis* are conspicuous.

A specialist study will be done on the portion in the Vaal River to identify any protected species.



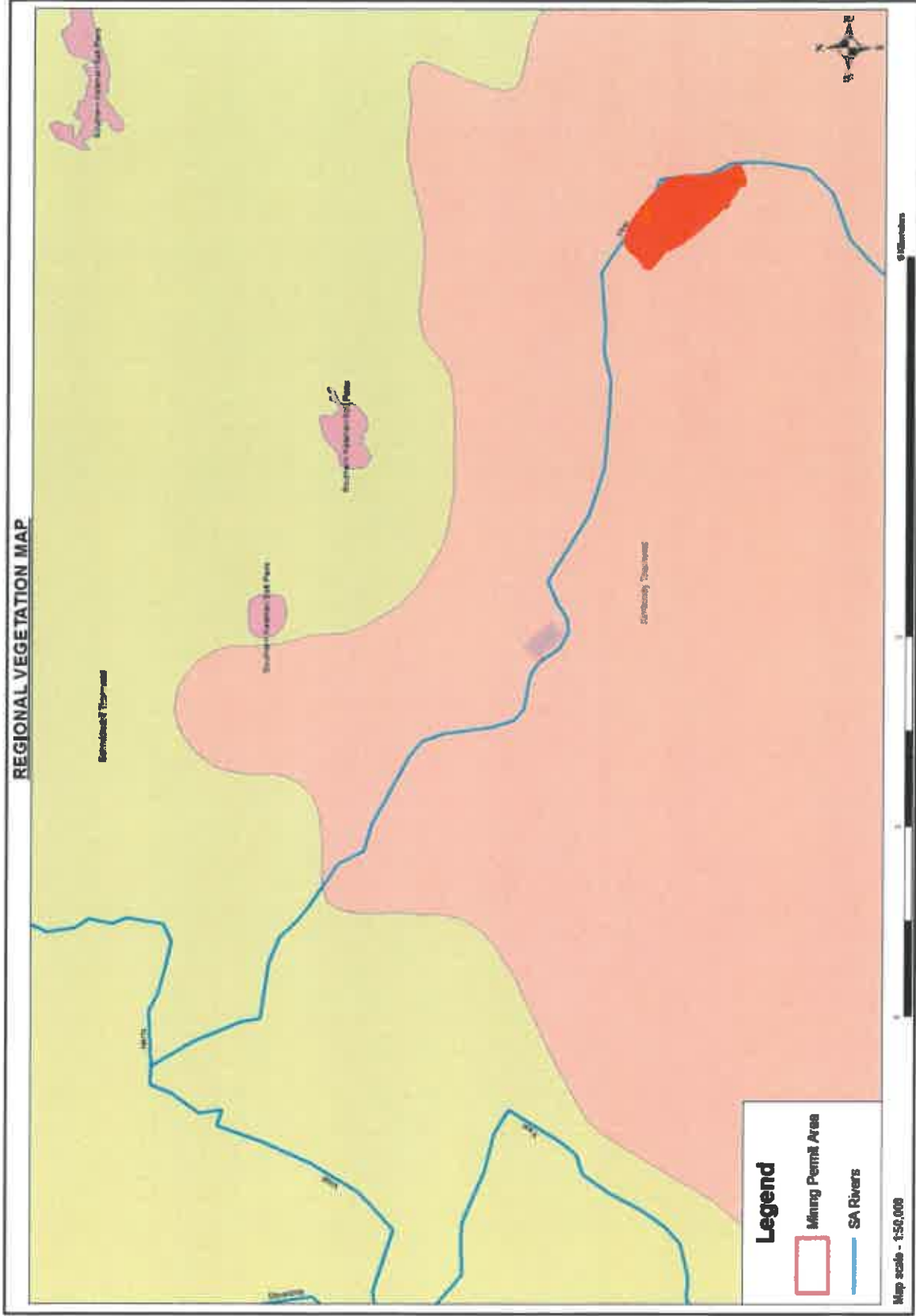


Figure 6 : Regional Vegetation Map, the Mining right application is indicated in red.

(8) SURFACE WATER

The application area is on Pniel 281 and within the Vaal River. See Figure 8 for an indication of where the application area is situated within the catchment.

The catchment area

The quaternary catchment is C91E. The gross area of the catchment is 1 509 km<sup>2</sup>, the net area of the catchment is 1 066 km<sup>2</sup>, and 13.2 km<sup>2</sup> of the catchment is under irrigation, Figure 7 below.

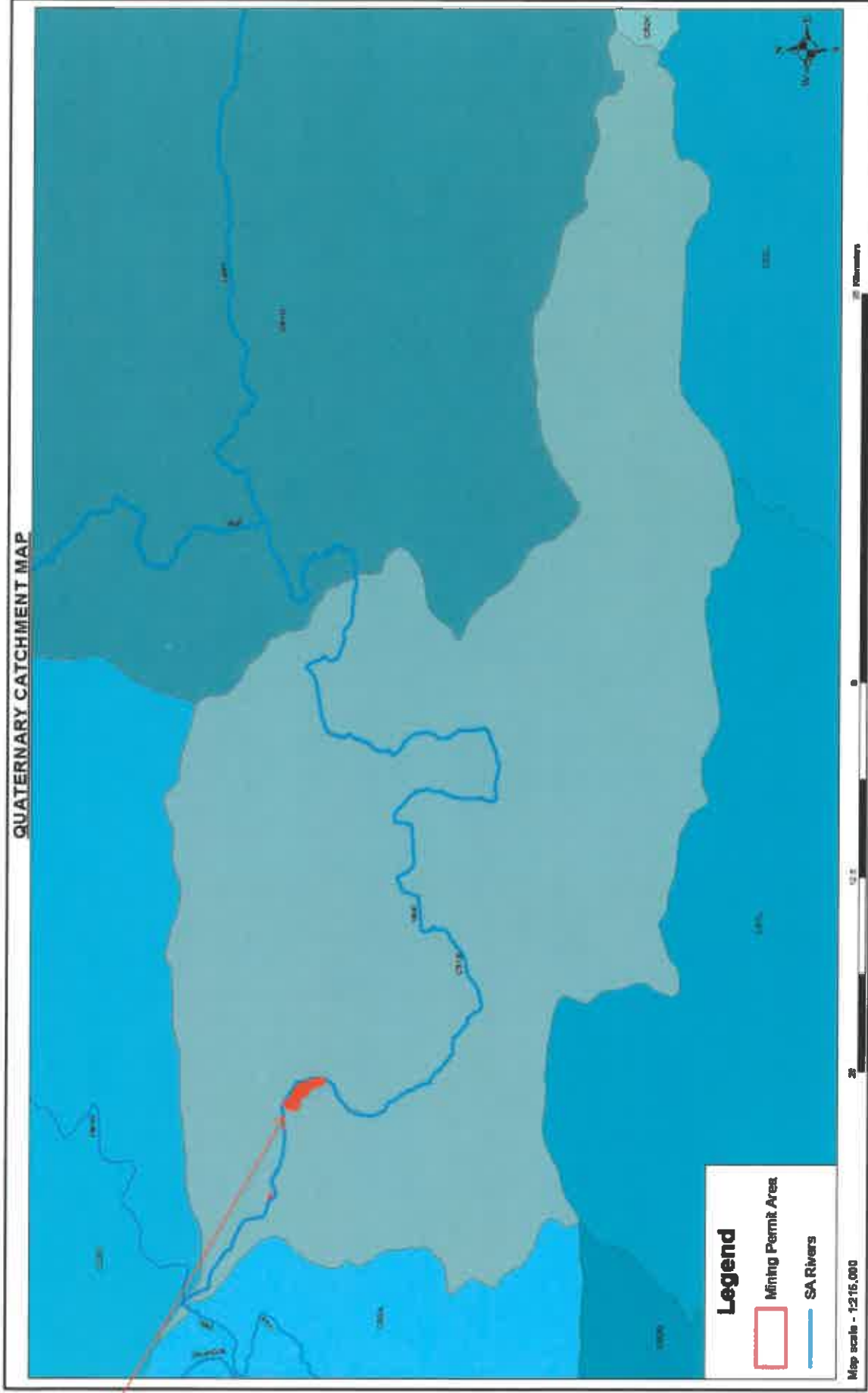


Figure 7: Catchment Map with application area indicated in red.

#### The average annual run-off

Surface run-off only occurs during periods of high rainfall (days with more than 10mm precipitation). It is only during storm event that surface run-off is expected to flow into the Vaal river (owing to low rainfall and high evaporation figures). The mean annual run-off is 2.3 mm.

#### Normal dry weather run-off

The streams and pans within the study area do not normally contain water during the dry season. The normal dry weather flow in the Vaal River is as low as 52.71 million cubic meters, in August and up to 674.1 million cubic meters during February.

#### Flood levels and volumes

From historical data provided by DWS-Kimberley it is known that during a 1 in 50 year storm event the Vaal River is expected to rise by an average of 5m. During a 1:100 year storm event it is estimated that the river height will rise as much as 10 – 12 m.

#### Surface water quality:

With the alluvial gravels not having any harmful or toxic substance, water emanating from the mine property will not contaminate any surface water source.

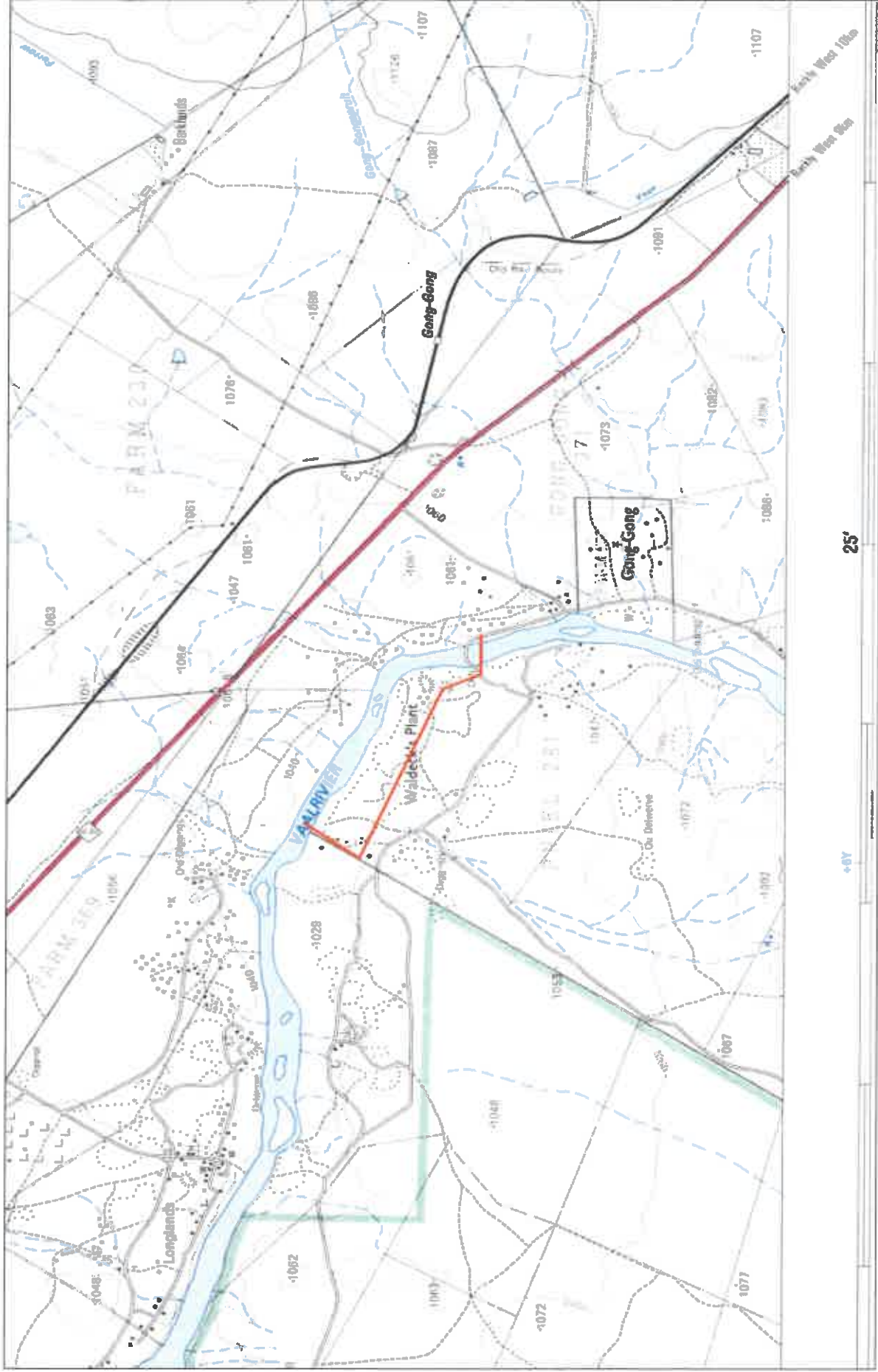


Figure 8: Surface Water Map with the Mining Right indicated in red.

**(9) GROUND WATER:****Depth of water-table(s):**

Groundwater flow is in the direction of the Vaal River following the surface drainage direction from the higher grounds.

**Mean Depth of Water-Table**

Several boreholes are located within the old Vaalbos National Park area, these ranges in depth from approximately 30 – 45 m.

**Ground-water use:**

At present ground water supplies drinking water to the game present on the reserve which borders the application area.

**Ground-water zone:**

The alluvial diamond mining does not affect the quality of the ground water in any manner. There are no harmful or toxic properties in the gravels being mined. The recycling of the water only requires sediment settling, thus no aquifers and aquicludes are on the property.

**(10) AIR QUALITY AND NOISE:**

*With reference to the Scheduled processes under the Second Schedule to the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965): No scheduled process relates to any proposed mining activity on the farm.*

**Existing sources**

*The current source of air pollution in the area stems from numerous mining operations within the area (Vaalbos, Scarlet Sun 15 (Pty) Ltd) and from vehicles traveling on the gravel roads of the area.*

**New source**

*The source of air pollution on the farm will be nuisance dust generated by the opencast mining process, the loading of gravels onto the transport trucks, the dumping of gravels over each site primary screen or feeder bins as well as from the movement of trucks and vehicles on the mining roads. Gas emissions from machinery will be within legal limits.*

**Areas of impact**

*As the prevailing wind direction for the area is north to North West for the months January to September and changing from north to sometimes westerly winds during October to December, there is a potential for fall-out dust to impact on the surrounding farm properties – which can be described as the nearest potential area of impact. The dust*

*management programme recommended should include daily dosing of access roads and stockpile areas.*

*The dust is controlled by watering down the roadway used by these trucks. The mineral processing is a wet process, thus no dust is generated.*

A complain register for surrounding owners and the community will be kept on site and the management of dust would be guided by these additionally comments of public.

#### Noise

##### Existing sources:

Noise on site will come from the large vehicles (ADT trucks, front-end loader, back actor), from the working pan.

There are numerous mining operations on both sides of the mining operations. Although these operations do generate noise the overall impact can be described as negligible.

The impact would be of more importance regarding the direct worker environment that should adhere to the requirements in terms of the Mine Health and Safety Act. These noise levels will be continuous and the operators will be issued with earplugs.

Noise is normally encountered during the normal operation hours at the processing plant. Processing plant noise and mine vehicles are limited between 7am and 5pm every day during the week. Noise levels are monitored on the mining area and where necessary, protective equipment is used in certain areas where machinery is used.

#### (11) VISUAL ASPECTS:

The mining site is not at all visible from any main tourist route or main route. The negative visual impacts associated with open excavations and the washing pan will however have a low negative impact since it will only be visible to the landowners. There is however no method of reducing the impact during mining operations (operational phase), it can only be mitigation by doing concurrent rehabilitation of open excavations as mining progress.

#### (12) TOPOGRAPHY, SOIL EROSION AND ASSOCIATED DEGRADATION OF ECOSYSTEMS:

The only potential sensitive landscape is the Vaal River, its banks and the associated wetland areas. The current and future mining activities will go further towards the Vaal River and it is thus foreseen that mining will have a possible influence on this water body.

The area is fairly flat and sandy/soil substrate is possibly deep. Therefore, the risk of erosion in natural areas is expected to be very low. The areas around the core mining site that have been stripped of vegetation are more likely to generate significant amounts of runoff during rainfall events. Disturbance created during additional construction or renovations of infrastructure could potentially leave the site vulnerable to soil erosion due to additional loss of plant cover. Soil erosion is therefore considered a likely impact around these areas.

(13) BROAD-SCALE ECOLOGICAL PROCESSES:

Transformation of intact habitat on a cumulative basis could contribute to the fragmentation of the landscape and could potentially disrupt the connectivity of the landscape for fauna and flora and impair their ability to respond to environmental fluctuations.

(14) SOCIO-ECONOMIC STRUCTURE OF THE REGION:

**Basic Municipal Profile – Dikgatlong Municipality**

[Information obtained from the Draft Dikgatlong IDP 26 March 2013]

**Population**

The Dikgatlong Municipality has a total population of 46 841, with 50.76% female and 49.24% male (Census 2011). This indicates that the population has increased, as the population was 35 773 in 2001. Between 1996 and 2001 the population decreased by 0.65% however there was population growth of 2.02% between 2001 and 2011. The population is divided into various racial groups: the majority being Black African (58.47%), followed by Coloured (28.48%), Other (8.88%), while Whites (3.62%) and Indians or Asian (0.28%) being least represented.

The number of households increased from 9 733 households (2001) to 11 969 households (2011) in the Dikgatlong Local Municipality. This has led to a slight increase in the household size; which has increased from 3.7 to 3.9 (2001 to 2011).

**Age Groups**

The population of Dikgatlong Local Municipality consist mainly of young people, the biggest age group is those between 0 – 4 years, while



66.31% of the population are those between the ages of 0 – 34 years. The population consists mainly of young people and the municipal area has a low percentage in elderly people. The dependency rate increased from 58.1% (2001) to 58.5% (2011).

#### **Spatial Development Rationale**

The municipality derives its name Dikgatlong from a Setswana word meaning “confluence” as the Harts and Vaal river flow into each other in Delpoortshoop.

The Dikgatlong Local Municipality which covers a geographical area of 237 749.2 ha and covers the following areas: Barkly West, Mataleng, Delpoortshoop, Ulco, Longlands, Gong Gong, Holpan, Smuts Myn, Pniel, Vaal Gama Gara, Stilwater, Morrisdraai and the former District Municipal Area (Koopmansfontein, Blikfontein, Klipfontein and Dancarl).

The administrative head office of the municipality is located in Barkly West. The municipality falls under the Frances Baard District Municipality (FBDM) and it is 32km from Kimberley. The municipality serves as a connector route for those travelling from Kimberley to Kuruman (or vice versa). The municipality is bordered by the Sol Plaatje Local Municipality on the south, Kgatelopele Local Municipality on the west, Ga-Segonyana Local Municipality on the north and Greater Taung Local Municipality on the east.

#### **Connection**

Movement systems such as road and pedestrian route are often used to indicate accessibility. Movement systems thus affect the range of choices and opportunity available to inhabitants. “The municipality has various structuring elements such as the primary corridor along the N12 and a secondary corridor along the R31 towards Sishen and Danielskuil through Dikgatlong” which transports goods and people (Dikgatlong SDF, 2008: 79). The major economic activities occur on the R31 road this had led to linear development along the main road. The N12 serves mainly as a transport corridor.

#### **Space**

“Public spaces provide a meeting place for people residing in those settlements. At the heart of settlement-making lies the creation of a continuum, or hierarchy, of public spaces and movements systems, which attract, and give order to, activities, events and elements in accordance with their need for publicness or privacy.” (Redbook, 2000:6) “Dikgatlong shows a settlement hierarchy and structure where the population is distributed in the towns along the movement

corridors with Barkly West enjoying the greatest concentration of people. This place Barkly West is the more dominant position when considering the other settlements in the municipality.” (Dikgatlong SDF, 2008: 90)

The surrounding areas (in the Dikgatlong Local Municipality) come to Barkly West for most of their shopping needs, access to government institutions and other services. The principle of the NSDP which emphasises the importance of investing in people rather than infrastructure in places of low economic potential is of particularly relevant to Dikgatlong Local Municipality.

The Vaal and Harts river corridor has been a major structuring element for the municipal area. The municipality also has an alluvial mining and agricultural development corridor between Barkly West and Ulco (FBDM SDF, 2009).

#### **Water Sources**

The municipal area is serviced by the two rivers, Harts and Vaal River, which meet in the municipal area. The municipality has a wetland which covers 5.7% of the municipal area. The boreholes on the south eastern areas of the municipality are tapping into the underground water supplies. However, “the presence of significant groundwater to the south does allow an opportunity for irrigation farming from a source that is not directly linked to the major water systems.” (Dikgatlong SDF, 2009: 42). Long term sustainability remains a concern when it comes to the irrigation systems and with groundwater resources.

#### **Social-Economic and Social Analysis**

##### **1) Education Levels**

Education prepares individuals so that they are able to play an active role in the labour market, which directly affects their quality of life as well as the economy of a country and the area they live in. through the education level, one can then understand the skills that an area has and its potential to contribute positively to the economy. (Stats SA) Dikgatlong Local Municipality has a large number of people with some secondary school followed by those with some primary levels. Those with Grade 12 constitute 12.83% while those higher than Grade 12 only constitute 1.64%. There are a limited number of skilled people from which the labour market can draw skills/expertise from.

##### **2) Official Employment Status**

The number of those who are not economically active is very high, which means a large portion of the population is highly dependent on social grants or on those that work. The number of employed people has increased from 5 924 people (2001) to 7 841 (2011). Thus the unemployment rate has decreased from 45.3% (2001) to 39.7% (2011).

The Stats SA 2011 indicates that more men are employed than their female counterparts. Furthermore women are the most discourage work seekers. Additionally, the economical not active femal population is also higher than their male counterparts.

### 3) Income Distribution

The majority of people in Dikgatlong Local Municipality do not get an income, followed by those who get below R400 per month. Approximately 63% of the population live below the poverty line (R500). "Income variable is one of the variables that measure individual and household welfare. It is important variable that assists in generating indicators relating to poverty and development." (Statistics SA, 2012) Such information is important, as it assist in facilltating planning and the allocation of resources.

### 4) Social Infrastructure

"Good urban environments are, by definition, convenient. They allow inhabitants to conduct dally activities quickly and easily. Inconvenient environments, on the other hand, impose on lfifestyles, reduce choices and increase costs. Access lies at the heart of convenience." (Redbook, 2000: 3) Settlements that perform well are settlements that are convenient and give people access to facilltels (Redbook). The presence of social facilities to the residents of Dikgatlong Local Municipality gives them a sense of place, a sense of belonging and makes life convenient for them. Some wards share facilities with those who do not have. Below is an overview of the facilities that each ward has:

Ward	Educational	Library	Health	Recreational	Safety	Community
1 Mataleng	3 Schools	1	Clinic	Sport complex	-	Community Hall
2 Debeers hoogte	3 Schools, 3 ECDs	1	Clinic	Swimming pool	Magistrate court	Community Hall
3	2 Schools, 1 ECD	-	Hospital	Resort	Police Station	-
4 Windsorton	3 Schools	1	Clinic, Mobile Clinic	Park Sport Complex	Police Station	2 Community Halls
5	2 Schools,	-	Clinic	-	-	-

Longlands	1 ECD					
6 Roolkoppies	2 Schools, 3 ECDs	1	-	-	Police Station	Community Hall
7 Tidimalo	2 Schools, 3 ECDs	-	Clinic	Sport Complex		Community Hall

### 5) Dwellings

There has not been a significant change in the dwellings indicators of Dikgatlong Local Municipality. Those living in formal structure constitute 78.5% compared to the 73.2% of 2001. Those living in informal settlements constitute 11.5% of the total households.

### 6) Transport Networks

“Convenient public transport means that fewer people use private motorcars, so less petrol is used and there is less pollution from car exhausts. Access to affordable public transport also makes looking for jobs easier.” (DENC Information Brochure) The Dikgatlong LM is serviced by taxis, which take people from Barkly West to the other townships and to areas as Kimberley. Transport networks do not just transport people but they transport goods and services. The issue of access is a key issue in the Dikgatlong SDF, that social facilities must be accessible to people.

### Sectors Contributing to the Economy

17.73% of employment people are employed in the formal sector while the informal economy has employed 4.29%. The role of the informal economy cannot be underestimated, as it provided those who are unskilled an opportunity to create livelihood for themselves. Dikgatlong Local Municipality acknowledges and appreciated the positive contribution that the informal economy plays in its municipal area and local economic growth. 3.32% of employment people are in private households; these are people who work as domestic workers, gardeners, drivers and child minders for individual homes.

### Tourism and SMMEs

Tourism is one of the key area that drives growth in the Province. There is currently a proposed alluvial diamond hiking trail. There is also a need for SAHRA to work with the municipality to see how best to utilise the heritage sites, so that they can make a contribution to the economy of the municipality.

### Access to Water

Water is available to almost 50% of the population in the Northern Cape in the form of water piped to their dwelling. The next most used source of water supply is piped water on-site or in yards, which is available to around 33% of the population.

Surface water from the Riet-, Vaal- and Orange River is the major source of water in the region, although some smaller communities are totally dependent on groundwater for supply.

The majority of households (5 935) in Dikgatlong have access to piped water inside their yard, followed by those who have access to piped water inside their dwelling (3 670). The concern is for those households that must travel more than 1km (more than 20 minutes) to access a community piped water stand (0.24%), as it technical indicates that such service is not accessible. The concern is also for those who have no access to tap water (2.77%), as they might be drinking water that is un-purified and not good for health purposes.

The municipality is the water service authority for Rooikoppies, Tidimalo and a portion of Longlands. The rest of the municipal area is supplied with water by Sedibeng Water.

#### Sanitation

The Millenium Development Goal states the need for “sustainable access to safe drinking water and basic sanitation”. 13.72% of households in the Dikgatlong LM do not have access to basic sanitation, while 1.84% still uses the bucket toilet. The 13.72% of none access, is higher than the Provincial one which is 8.04% of households with not access to basic sanitation.

From the table below it is clear that Ward 3 and Ward 5 have the highest number of households with no access to sanitation, while Ward 2 and Ward 7 have the highest number of households who still use the bucket system, so priority must be given to these wards in terms of addressing access to basic sanitation.

Ward	None	Bucket Toilet
Ward 1 Mataleng	78	4
Ward 2 Debeershoogte	87	58
Ward 3 Roolrand	533	27
Ward 4 Windsorton	202	3
Ward 5 Longlands	484	22
Ward 6	158	18
Ward 7	99	86

#### Waste Management (Removal and Disposal)

Proper waste management is important for sustainable development because if waste is not disposed of properly it can cause environmental and health problems.

49.57% of households have their refuse removed by a local authority at least once a week, while 27% have their own refuse dump and 11.78% have no rubbish disposal. It is a great concern for those who have no rubbish disposal because they can dispose their refuse in a manner that is not in line with sustainable development principles.

Rooiberg has the highest number of households that are without a rubbish disposal and those with other forms of refuse disposal. The other challenge confronting waste management is that all the landfill sites are not licensed and they are often vandalised.

#### **Electricity and Energy**

There has been an improvement on the energy use across the whole country. The majority of households (75.86%) use electricity as the source of energy for lighting, this was previously 68.5% (in 2001). The number of households that use candles has also decreased from 32% to 18.66% as well as those who use gas and paraffin. However, there seems to be no visible efforts of using solar energy, to decrease the dependency of electricity.

#### **Roads**

Roads form the backbone of any economy, as they transport goods, services and people. It is vital that the roads are in good conditions so that they can perform the services which they are meant for. The municipality has pedestrian sidewalks in the main town, to avoid people walking on the road and being in danger of oncoming traffic. 80% of the wards are provided with sidewalks, road and storm water drainage.

#### **Storm Water**

80% of MIG has been spent on roads and storm water. It was one of the main priorities in the 2012/13 financial year.

**Household access to basic services and the lack of:**

Ward	Energy – Lighting		Source of Water	Refuse Removal		Access to Toilets		Areas of concern
	None	Electricity	Water Scheme	Removed by municipality once a week	No rubbish disposal	None	Flush Toilet	
1 Mataleng	3	1177	1108	624	70	78	759	Energy
2 Debeers hoogte	4	1290	1326	1230	135	87	1143	
3 Roolrand	10	1013	1880	522	808	533	1058	Toilets
4 Windsorton	3	1552	1373	1190	53	202	1209	Energy
5 Longlands	8	1409	1417	229	98	484	772	Toilets
6 Roolkopples	5	1200	931	838	155	158	931	
7 Tidlmallo	5	1439	1583	1298	91	99	1306	

**(15) SENSITIVE LANDSCAPES:**

“Sensitive Environments” that have statutory protection are the following:-

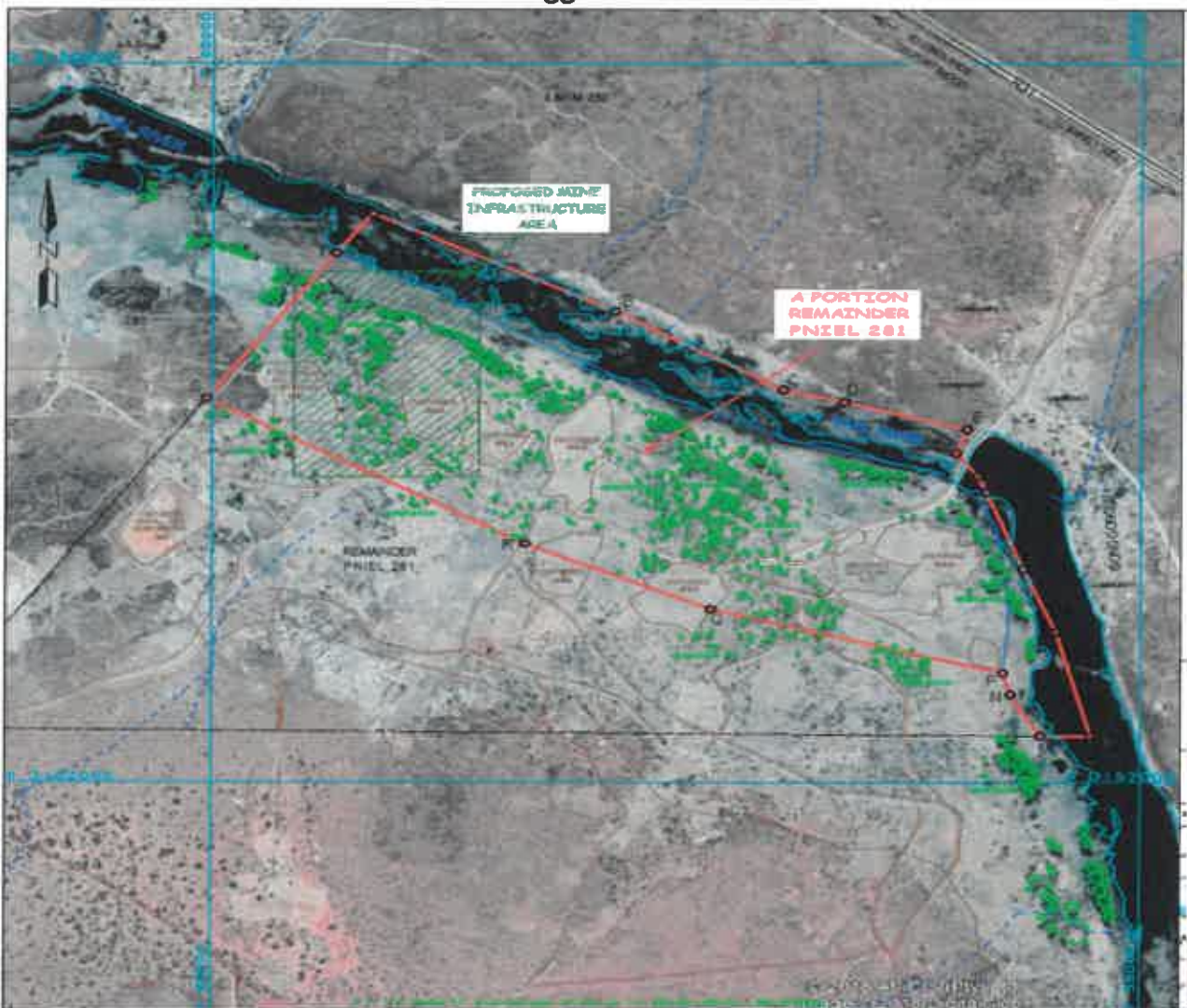
1. Limited development areas (Section 23 of the Environmental Conservation Act, 1989 (Act 73 of 1989).
2. Protected natural environments and national heritage sites.
3. National, provincial, municipal and private nature reserves.
4. Conservation areas and sites of conservation significance.
5. National monuments and gardens of remembrance.
6. Archaeological and palaeontological sites.
7. Graves and burial sites.
8. Lake areas, offshore islands and the admiralty reserve.
9. Estuaries, lagoons, wetlands and lakes.
10. Streams and river channels and their banks.
11. Dunes and beaches.
12. Caves and sites of geological significance.
13. Battle and burial sites.
14. Habitat and/or breeding sites of Red Data Book species.
15. Areas or sites of outstanding natural beauty.
16. Areas or sites of special scientific interest.
17. Areas or sites of special social, cultural or historical interest.
18. Declared national heritage sites.
19. Mountain catchment areas.
20. Areas with eco-tourism potential.

The relevant specialists will be appointed to assess whether there are any sensitive landscapes within the application area.

**(b) Description of the Current Land Use**

**(1) *Land Use before Mining:***

The application area is within the Vaal River which is part of historical mining as is evident from the google image below. It is also evident that the original path of the river was diverted by the old time diggers. No other land use is known.



**Figure 9:** Google map indicating the previous disturbance in the river with red arrows.

**(2) Evidence of Disturbance:-**

The application area is within the Vaal River which is part of historical mining as is evident from the google image Figure 9.



The unrehabilitated areas by the old time diggers is still evident in the river.

(3) Existing Structures:-

There is no structures within the application area.

All 100m safety borders from formal infrastructure will be kept.

**(c) Description of Specific Environmental Features and Infrastructure on Site**

The infrastructure on site comprehensively discussed in section d(ii) as part of the mining methodology discussion, as well as in section g as part of the mine footprint description. Furthermore, a comprehensive description of the environment was presented in section (i) as part of the baseline report.

(d) Environmental and current land use map (Show all environmental, and current land use features)

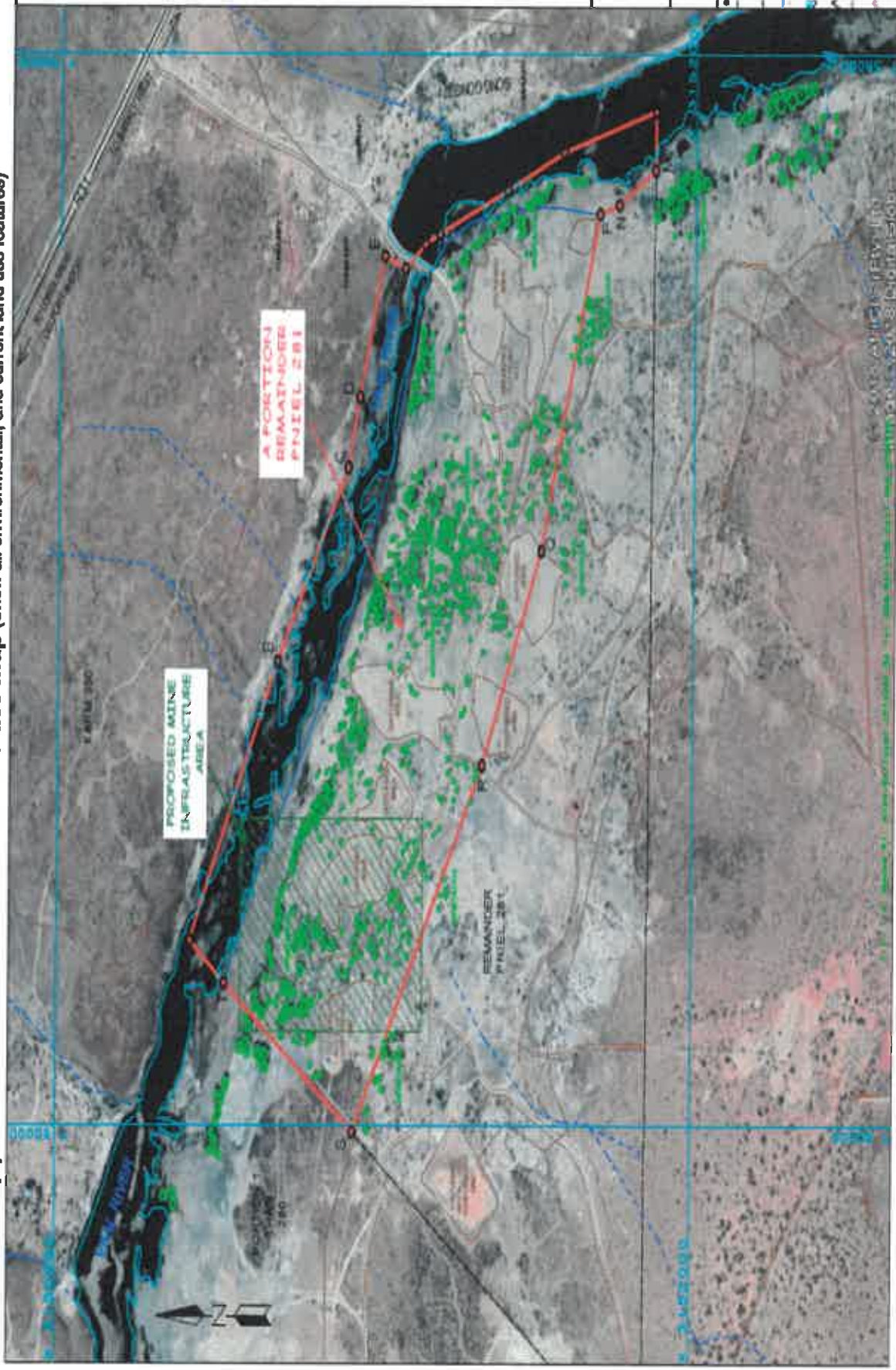


Figure 10: Environmental and current land use map

v)

**Impacts identified**

(Provide a list of the potential impacts identified of the activities described in the Initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties with the significance, probability and duration of the impacts.)

Nature of Impact	Significance	Probability	Duration
Sterilisation of mineral resources.	Very low	Highly unlikely	Decommissioning
Changes to surface topography due to topsoil removal, alluvial mining, placement of infrastructure and development of residue deposits.	Low to medium	Certain	Long Term Life of operation
Soil erosion by water and wind on disturbed and exposed soils; potential for dust production and soil microbial degradation; potential contamination of soils due to spillages.	Low	Possible	Long Term Life of operation
Loss of land capability through topsoil removal, disturbances and loss of soil fertility.	Very low	Possible	Short term
Loss of land use due to poor placement of surface infrastructure and ineffective rehabilitation.	Very low	Possible	Short term
Pollution of underground water sources.	Low	Possible	Long Term Residual
Deterioration of water resources through alluvial mining.	Medium to High	Possible	Long Term Residual
Deterioration in water quality through spillages and runoff from sites.	Medium	Possible	Long Term Life of operation
The clearance of vegetation; potential loss of floral species with conservation value; potential loss of ecosystem function.	Low to medium	Certain	Long Term Life of operation
Proliferation of alien invasive plants species.	Low to medium	Possible	Long Term Residual
Displacement of faunal species.	Low	Possible	Long Term Life of operation
The loss, damage and fragmentation of floral and faunal habitats; potential loss of ecosystem function.	Low to Medium	Certain	Long Term Residual
Sources of atmospheric emission associated with the mining operation are likely to include fugitive dust from materials handling operations, wind erosion of stockpiles and vehicle entrainment of road dust.	Minimal	Certain	Life of Operation Decommissioning

Increase in continuous noise levels; the disruption of current ambient noise levels; and the disruption of sensitive receptors by means of increased noise and vibration.	Low to medium	Certain	Long Term Life of Operation
Visual impact of the mine infrastructure, slimes dams and visibility of dust.	Medium to Low	Certain	Life of Operation Decommissioning
Potential negative impacts on traffic safety and deterioration of the existing road networks.	Medium	Possible	Life of Operation Decommissioning
The deterioration of sites of cultural and heritage importance.	Low	Possible	Life of Operation
Loss of agricultural/grazing potential; influx of workers to the area increases health risks and loitering (resulting in lack of security and safety); negative impact of employment loss during site closure.	Low and Low to medium	Certain	Short-term and Closure
Loss of trust and a good standing relationship with the IAPs.	Low to medium	Possible	Life of Operation Decommissioning
Positive socio-economic impacts during operation, upliftment of previously disadvantaged communities.	Medium to high	Certain	Life of Operation Decommissioning to residual

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

(Describe how the significance, probability, and duration of the aforesaid identified impacts that were identified through the consultation process was determined in order to decide the extent to which the initial site layout needs revision)

The limits were defined in relation to the Mining Characteristics. Those for probability, significance and duration are subjective, based on rule of thumb and experience. The significance of the impacts is defined as follows:

The assessment of the impacts has been conducted according to a synthesis of criteria required by the integrated environmental management procedure.

**Nature of Impact**

This is an appraisal of the type of effect the activity would have on the affected environmental component. Its description should include what is being affected, and how.

**Extent**

The physical and spatial size of the impact. This is classified as follows:

- **Local**  
The impacted area extends only as far as the activity, e.g. a footprint.
- **Site**  
The impact could affect the whole, or a measurable portion of the property.
- **Regional**  
The impact could affect the area including the neighbouring farms, transport routes and the adjoining towns.

**Duration**

The lifetime of the impact which is measured in the context of the lifetime of the proposed phase (i.e. construction or operation).

- **Short term**  
The impact will either disappear with mitigation or will be mitigated through natural process in a short time period.
- **Medium term**  
The impact will last up to the end of the mining period, where after it will be entirely negated.
- **Long term (Residual)**  
The impact will continue or last for the entire operational life of the mine, but will be mitigated by direct human action or by natural processes thereafter.
- **Permanent**  
The only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.

**Intensity**

This describes how destructive, or benign, the impact is. Does it destroy the impacted environment, alter its functioning, or slightly alter it. These are rated as:

- **Low**

This alters the affected environment in such a way that the natural processes or functions are not affected.

- **Medium**  
The affected environment is altered, but function and process continue, albeit in a modified way.
- **High**  
Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.

This will be a relative evaluation within the context of all the activities and the other impacts within the framework of the project.

#### **Probability**

This describes the likelihood of the impacts actually occurring. The impact may occur for any length of time during the life cycle of the activity, and not at any given time. The classes are rated as follows:

- **Improbable**  
The possibility of the impact occurring is very low, due either to the circumstances, design or experience.
- **Probable**  
There is a possibility that the impact will occur to the extent that provisions must be made therefore.
- **Highly probable**  
It is most likely that the impacts will occur at some or other stage of the development.
- **Definite**  
The impact will take place regardless of any preventative plans, and mitigation measures or contingency plans will have to be implemented to contain the impact.

#### **Determination of significance**

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The classes are rated as follows:

- **No significance**  
The impact is not likely to be substantial and does not require any mitigatory action.
- **Low**  
The impact is of little importance, but may require limited mitigation.
- **Medium**  
The impact is of importance and therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels.
- **High**  
The impact is of great importance. Failure to mitigate, with the objective to reduce the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation is therefore essential.

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

(Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties)

During construction and operation of the mine, there is a possibility of sterilisation of the mineral reserves and resources due to improper placement of infrastructure. The infrastructure and slimes dam will alter the topography by adding features to the landscape. Topsoil removal and alluvial mining will unearth the natural topography. The construction of infrastructure and various facilities in the mining area can also result in loss of soil due to erosion. Vegetation where present will be stripped in preparation for placement of infrastructure and loading, and therefore the areas will be bare and susceptible to erosion. The topsoil that is stripped and piled on surrounding areas can be eroded by wind and rain. The soil will be carried away during runoff. The declared areas will be rehabilitated, but full restoration of soil might only occur over a number of years, subsequent to the re-establishment of vegetation. Furthermore, improper stockpiling and soil compaction can result in soil sterilisation. Leaching can also occur, resulting in the loss of nutrients.

During the construction and operation of the mine, there is a possibility that equipment might leak oil, thus causing surface spillages. The hydrocarbon soil contamination will render the soil unusable unless they are decontaminated. The storage of fuels on site might have an impact on soil if the tanks that are available on site are not properly monitored and maintained to avoid leakages. Then there is the potential that contaminated soil can be carried through runoff to contaminate water resources and soil stockpiled for rehabilitation. Soil pollution is therefore possible, but through mitigation it can be minimised.

The loss of land capability and land use can occur in two ways. Firstly, through topsoil removal, disturbances and loss of soil fertility; and secondly through the improper placement of infrastructure. The site has a land capability for limited grazing, but grazing activities can still be performed in areas not earmarked for mining, and with proper rehabilitation the land capabilities and land use potential can be restored.

If oil and fuel spillages occur, then it will seep into the underlying aquifers and contaminate ground water. Improper handling of hazardous material will cause contamination of nearby surface water resources during runoff episodes. Lack of storm control structures will lead to erosion of stockpiles during heavy rains and runoff will carry suspended solids into the downstream environment. This might cause high silt load and affect stream flow.

Construction and mining activities on site will reduce the natural habitat for ecological systems to continue their operation. It is not expected that the areas of high

ecological function will rehabilitate following disturbance events. Vehicle traffic generates lots of dust which can reduce the growth success and seed dispersal of many small plant species. It is expected that protected species if present will be destroyed during the mining operation, the necessary permits will be obtained after the specialist studies have been completed to confirm the presence of the protected species.

While general clearing of the area and mining activities destroy natural vegetation, invasive plants can increase due to their opportunistic nature in disturbed areas. If invasive plant establish in disturbed areas, it may cause an impact beyond the boundaries of the mining site. These alien invasive species are thus a threat to surrounding natural vegetation and can result in the decrease of biodiversity and ecological value of the area. Therefore, if alien invasive species are not controlled and managed, their propagation into new areas could have a high impact on the surrounding natural vegetation in the long term. With proper mitigation, the impacts can be substantially reduced.

The transformation of natural habitats to mining and associated infrastructure will result in the loss of habitat affected individual species, and ecological processes. In turn this will result in the displacement of faunal species dependent upon such habitat. Increased noise and vibration due to mining activities will disturb and possibly displace birds and other wildlife. Fast moving vehicles take a heavy toll in the form of road kills of small mammals, birds, reptiles, amphibians and a large number of invertebrates. The construction of the mine and associated infrastructure will result in the loss of connectivity and fragmentation of natural habitat. Fragmentation of habitat will lead to the loss of migration corridors, in turn resulting in degeneration of the affected population's genetic make-up. This results in a subsequent loss of genetic variability between meta-populations occurring within the site. Pockets of fragmental natural habitats hinder the growth and development of populations.

During the mining operation the abovementioned activities have potential for dust generation. It is anticipated that the extent of dust emissions would vary substantially from day to day depending on the level of activity and the specific operations. The mine will add a certain amount of noise to the existing noise in the area. However, levels of noise generated by mining activities are low.

The impact of site generated trips on the traffic of the existing roads is experienced to be low. Nevertheless, if road safety is not administered it can have a high impact on the safety of fellow road users.

The mining operation, especially during construction, will create a number of new employment opportunities. The magnitude of this impact will depend on the number of people that will be employed and the number of contractors sourced. An influx of people into the area will possibly impact on safety and security of local residents. During the decommissioning and at closure of the mine, staff will most likely be



retrenched. This can potentially flood the job market, resulting in people being unable to find new employment for a long period of time. It is normally more difficult for people with highly specialised skills to find employment immediately. Those with fewer skills have more flexibility in the job market.

Economic slump of the local towns after mine closure is an associated potential impact, although small due to the small scale of the operation. Income streams from wage bills as well as goods and services contracts (at all geographical levels) will come to an end, reducing the monetary income of individuals and mine-related businesses. People who have derived income directly or indirectly from the project may be inclined to leave the region in search of employment or business opportunities. This could result in further decline of the economy of the region as well as the abandonment of infrastructure. The loss of the mine workforce income will also impact upon non-mine related industries within the local and regional areas, particularly the rental property market and retail and service industries who would have received income during the life of mine from the salaried workforce.

It is likely, however that there will be residual positive economic impacts that are not fully reversed with the closure of the mine, and that the economy will not decline to its original level prior to the development of this project. This is because the mine will generate substantial income for the regional and local economy, both directly and indirectly, during its life.

It is difficult to predict the actual impact of the mine closure in advance, but it is acceptable to assume that the mine closure will have a negative impact on the local and regional economy with a high probability of occurrence, a Low severity and a Low significance.

Positive impacts include employment and training opportunities for people in the local community and local contractors; social upliftment and community development programmes; economic benefits.

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

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

##### **Geology and Mineral Resource**

**Level of risk:** Very low

##### **Mitigation measures**

- ❖ Ensure that optimal use is made of the available mineral resource through proper planning.

- ❖ The alluvial deposit should be delineated first and all infrastructure positions should be selected with the main aim of avoiding sterilization of future resources.
- ❖ No dumping of materials prior to approval by the mine manager.

### **Topography**

**Level of risk:** Low

#### **Mitigation measures**

- ❖ Mine all alluvial diamond gravels and rehabilitate material back up to natural ground level.
- ❖ Do controlled dumping.
- ❖ Employ effective rehabilitation strategies to restore surface topography of the area and plant site.
- ❖ Stabilise the excavations and mine residue deposits.
- ❖ All temporary Infrastructures will be demolished during closure.

### **Soil Erosion**

**Level of risk:** Very low

#### **Mitigation measures**

- ❖ At no point may plant cover be removed within the no-development zones.
- ❖ All attempts must be made to avoid exposure of dispersive soils.
- ❖ Re-establishment of plant cover on disturbed areas must take place as soon as possible, once activities in the area have ceased.
- ❖ Ground exposure should be minimised in terms of the surface area and duration, wherever possible.
- ❖ The mining operation must co-ordinate different activities in order to optimise the utilisation of the alluvial mining operations and thereby prevent repeated and unnecessary dumping.
- ❖ The run-off from the exposed ground should be controlled with the careful placement of flow retarding barriers.
- ❖ The soil that is excavated during construction should be stock-piled in layers and protected by berms to prevent erosion.
- ❖ All stockpiles must be kept as small as possible, with gentle slopes (18 degrees) in order to avoid excessive erosional induced losses.
- ❖ Excavated and stockpiled soil material are to be stored and bermed on the higher laying areas of the footprint area and not in any storm water run-off channels or any other areas where it is likely to cause erosion, or where water would naturally accumulate.
- ❖ Stockpiles susceptible to wind erosion are to be covered during windy periods.
- ❖ Audits must be carried out at regular intervals to identify areas where erosion is occurring.

- ❖ Appropriate remedial action, including the rehabilitation of the eroded areas, must occur.
- ❖ Rehabilitation of the erosion channels and gullies.
- ❖ The mining operation should avoid steep slopes.
- ❖ Dust suppression must take place, without compromising the water balance of the area.
- ❖ Linear Infrastructure such as roads and pipelines will be inspected at least monthly to check that the associated water management infrastructure is effective in controlling erosion.

### **Soil Pollution**

**Level of risk:** Very low

#### **Mitigation measures**

- ❖ Refuelling must take place in well demarcated areas and over suitable drip trays to prevent soil pollution.
- ❖ Spill kits to clean up accidental spills from earthmoving machinery must be well-marked and available on site.
- ❖ Workers must undergo induction to ensure that they are prepared for rapid clean-up procedures.
- ❖ All facilities where dangerous materials are stored must be contained in a bund wall.
- ❖ Vehicles and machinery should be regularly serviced and maintained.

### **Land Capability and Land Use**

**Level of risk:** Very low

#### **Mitigation measures**

- ❖ Ensure that optimal use is made of the available land through consultation with land owner and proper planning of mining activities.
- ❖ Surface agreement to be signed with land owners.
- ❖ Employ effective rehabilitation strategies to restore land capability and land use potential of the farm.
- ❖ All activities to be restricted within the demarcated areas.
- ❖ Ensure that land which is not used during construction is made available for grazing.

### **Groundwater**

**Level of risk:** Very low

#### **Mitigation measures**

- ❖ Refuelling must take place in well demarcated areas and over suitable drip trays to prevent soil pollution.
- ❖ Spill kits to clean up accidental spills from earthmoving machinery must be well-marked and available on site.
- ❖ Workers must undergo induction to ensure that they are prepared for rapid clean-up procedures.
- ❖ All facilities where dangerous materials are stored must be contained in a bund wall.
- ❖ Vehicles and machinery should be regularly serviced and maintained.

### **Surface Water**

**Level of risk: Medium to High**

#### **Mitigation measures**

- ❖ Sufficient care must be taken when handling hazardous materials to prevent pollution.
- ❖ Under no circumstances may ablutions occur outside the provided facilities.
- ❖ If servicing and washing of the vehicles occur on site, there must be specific areas constructed for these activities, which must have concrete foundations, bunding as well as oil traps to contain any spillages.
- ❖ A walled concrete platform, dedicated store with adequate flooring or bermed area and ventilation must be used to accommodate chemicals such as fuels, oils, paints, herbicide and insecticides.
- ❖ Oil residue shall be treated with oil absorbent and this material removed to an approved waste site.
- ❖ Spill kits must be easily accessible and workers must undergo induction regarding the use thereof.
- ❖ At all times care should be taken not to contaminate surface water resources.
- ❖ Store all litter carefully to prevent it from washing away or blown into any of the drainage channels or Kamfersdam within the area.
- ❖ Provide bins for staff at appropriate locations, particularly where food is consumed.
- ❖ The mining site should be cleared daily and litter removed.
- ❖ Conduct ongoing staff awareness programmes in order to reinforce the need to avoid littering, which contributes to surface water pollution.

### **Indigenous Flora**

**Level of risk: Low to medium**

#### **Mitigation measures**

- ❖ Minimise the footprint of transformation.
- ❖ Encourage proper rehabilitation of mined areas.
- ❖ Encourage the growth of natural plant species.

- ❖ Ensure measures for the adherence to the speed limit.
- ❖ Footprint areas of the mining activities must be scanned for Red Listed and protected plant species prior to mining.
- ❖ It is recommended that these plants are identified and marked prior to mining.
- ❖ These plants should, where possible, be incorporated into the design layout and left in situ.
- ❖ However, if threatened of destruction by mining, these plants should be removed (with the relevant permits from DAFF and DENC) and relocated if possible.
- ❖ A management plan should be implemented to ensure proper establishment of ex situ individuals, and should include a monitoring programme for at least two years after re-establishment in order to ensure successful translocation.
- ❖ All those working on site must be educated about the conservation importance of the fauna and flora occurring on site.

### **All Invasive Plants**

**Level of risk:** Very low

#### **Mitigation measures**

- ❖ Minimise the footprint of transformation.
- ❖ Encourage proper rehabilitation of mined areas.
- ❖ Encourage the growth of natural plant species.
- ❖ Mechanical methods (hand-pulling) of control to be implemented extensively.
- ❖ Annual follow-up operations to be implemented.

### **Fauna**

**Level of risk:** Very low

#### **Mitigation measures**

- ❖ Careful consideration is required when planning the placement for stockpiling topsoil and the creation of access routes in order to avoid the destruction of habitats and minimise the overall mining footprint.
- ❖ The appointment of a full-time ECO must render guidance to the staff and contractors with respect to suitable areas for all related disturbance.
- ❖ The extent of the mine should be demarcated on site layout plans, and no construction personnel or vehicles may leave the demarcated area except those authorised to do so. Those areas surrounding the mine site that are not part of the demarcated development area should be considered as a no go zone for employees, machinery or even visitors.
- ❖ All those working on site must be educated about the conservation importance of the fauna and flora occurring on site.
- ❖ The ECO must ensure that all contractors and workers undergo Environmental induction prior to commencing with work on site.

- ❖ The environmental induction should occur in the appropriate languages for the workers who may require translation.
- ❖ Reptiles and amphibians that are exposed during the clearing operations should be captured for later release or translocation by a qualified expert.
- ❖ Employ measures that ensure adherence to the speed limit.

### **Habitat**

**Level of risk:** Low

#### **Mitigation measures**

- ❖ Mining activities must be planned, where possible in order to encourage faunal dispersal and should minimise dissection or fragmentation of any important faunal habitat type.
- ❖ The extent of the mining area should be demarcated on site layout plans (preferably on disturbed areas or those identified with low conservation importance). No construction personnel or vehicles may leave the demarcated area except those authorised to do so.

### **Air Quality**

**Level of risk:** Very low

#### **Mitigation measures**

- ❖ Vegetation must be removed when soil stripping is required only. These areas should be limited to include those areas required for mining only, hereby reducing the surface area exposed to wind erosion. Adequate demarcation of these areas should be undertaken.
- ❖ Control options pertaining to topsoil removal, loading and dumping are generally limited to wet suppression.
- ❖ Where it is logistically possible, control methods for gravel roads should be utilised to reduce the re-suspension of particulates. Feasible methods include wet suppression, avoidance of unnecessary traffic, speed control and avoidance of track-on of material onto paved and treated roads.
- ❖ The length of time where alluvial dingo and mining areas are exposed should be restricted. Mining should not be delayed after vegetation has been cleared and topsoil removed where possible.
- ❖ Dust suppression methods should, where logistically possible, must be implemented at all areas that may/are exposed for long periods of time.
- ❖ For all mining activities management should undertake to implement health measures in terms of personal dust exposure, for all its employees.

### **Noise and Vibration**

**Level of risk:** Very low

**Mitigation measures**

- ❖ Restrict mining activities to daytime unless agreements obtained to do 24hr operations.
- ❖ Systematic maintenance of all forms of equipment, training of personnel to adhere to operational procedures that reduce the occurrence and magnitude of individual noisy events.
- ❖ Where possible material stockpiles should be placed so as to protect the boundaries from noise to individual operations.
- ❖ Standardised noise measurements should be carried out on individual equipment at the delivery to site to construct a reference data-base and regular checks carried out to ensure that equipment is not deteriorating and to detect increases which could lead to increase in the noise impact over time and increased complaints.
- ❖ Environmental noise monitoring should be carried out at regularly to detect deviations from predicted noise levels and enable corrective measures to be taken where warranted.

**Visual Impacts**

**Level of risk:** Very low

**Mitigation measures**

- ❖ Infrastructure should be placed to optimise the natural screening capacity of the vegetation.
- ❖ Where practical, protect existing vegetation clumps during in order to facilitate screening during the mining operation.
- ❖ Remove rubble and other building rubbish off site as soon as possible or place it in a container in order to keep the mining site free from additional unsightly elements.
- ❖ Dust suppression procedures should be implemented especially on windy days during earth works.
- ❖ Rehabilitation should aim to establish a diverse and self-sustaining surface cover that is visually and ecologically representative of naturally occurring vegetation species.
- ❖ Implement a management plan for the post-mining site in order to control the invasion of alien vegetation and to manage erosion, until the site is fully rehabilitated.

**Traffic and Road Safety**

**Level of risk:** Very low

**Mitigation measures**

- ❖ Implement measures that ensure the adherence to traffic rules.

### **Heritage Resources**

**Level of risk:** Very low

#### **Mitigation measures**

- ❖ The heritage if any is encountered and cultural resources (e.g. graveyards, ruins, historic structures, etc.) must be protected and preserved by the delineation of no go zones.
- ❖ Intact bedrock strata should be avoided during mining of terrace gravels where possible.
- ❖ Stone tools should be avoided where possible and fresh exposure should be recorded before destruction. All stone tool artefacts should be recorded, mapped and collected before destruction.
- ❖ Should development necessitate impact on any building structures, the developer should apply for a SAHRA Site Destruction Permit prior to commencement of construction.

### **Socio-Economic**

**Level of risk:** Very low

#### **Mitigation measures**

- ❖ The mine must ensure that false expectations are not created regarding job creation.
- ❖ Jobs must be allocated as advertised and in so far as is possible to local inhabitants.
- ❖ Contractors and employees should not be permitted to wander outside the mining area.
- ❖ Uncontrolled settlement of contractors and workers outside of the site will be prevented.
- ❖ The expectations of what benefits can accrue to the community must be managed from the initiation of the project.
- ❖ Commitments as set out in the SLP must be attained.

### **Interested and Affected Parties**

**Level of risk:** Very low

#### **Mitigation measures**

- ❖ Maintain active communications with IAPs.
- ❖ Ensure transparent communication with IAPs at all times.
- ❖ IAPs must be kept up to date on any changes in the mining operation.
- ❖ A complaints management system should be maintained by the mine to ensure that all issues raised by community members are followed up and addressed appropriately.



**ix) The outcome of the site selection Matrix. Final Site Layout Plan**

(Provide a final site layout plan as Informed by the process of consultation with interested and affected parties)

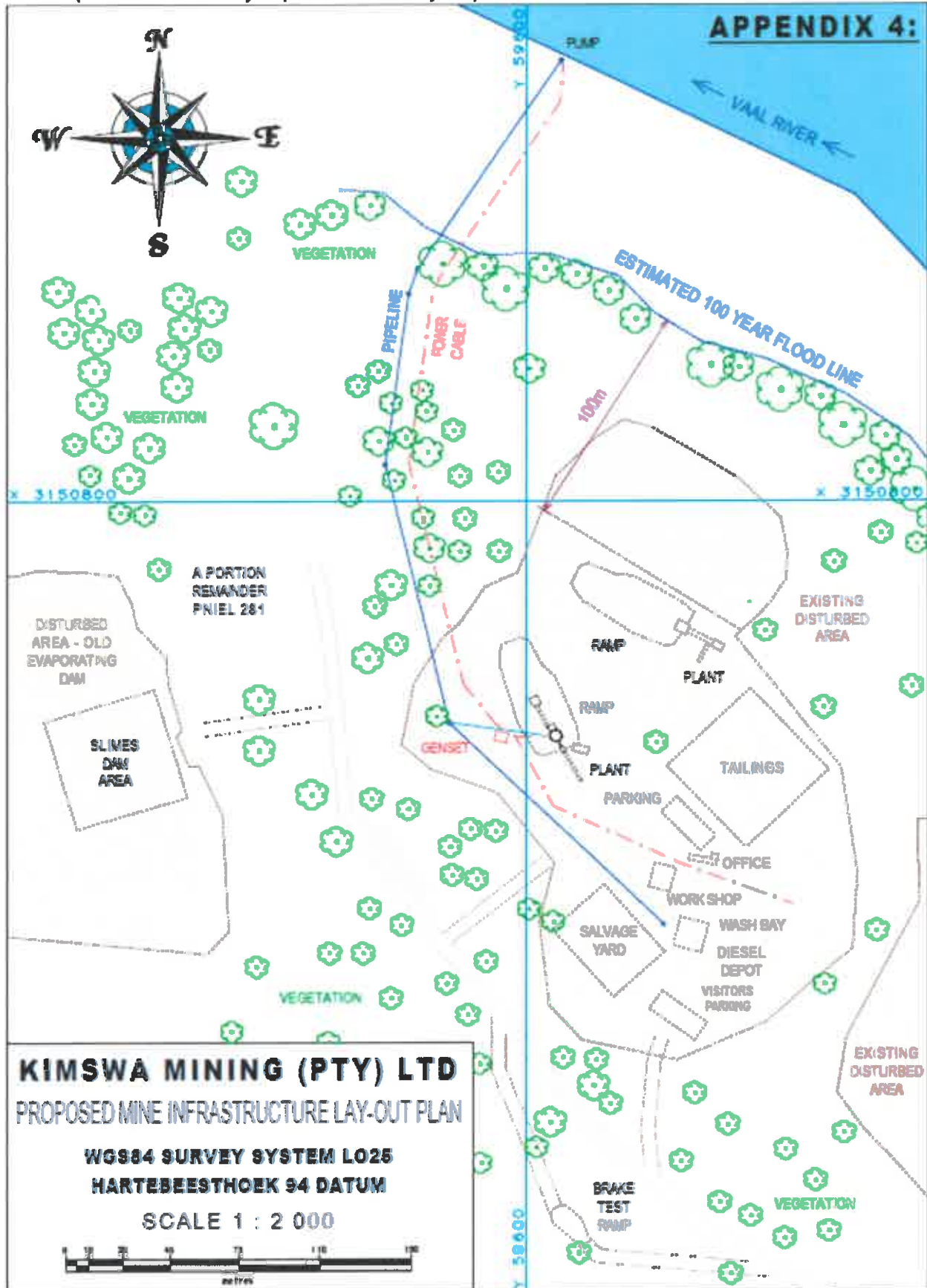


Figure 11A: Final site layout plan

**x) Motivation where no alternative sites were considered**

No alternative location for the proposed mining operation was considered, as the alluvial diamond resources has been deposited in this area. There is therefore no other alternative with regard to the overall operation footprint.

**xi) Statement motivating the preferred site.**

(Provide a statement motivating the final site layout that is proposed)

Not applicable. There is no alternative development location for the site as this is the area with the mineable resource.

**i) Plan of study for the Environmental Impact Assessment Process****1) Description of alternatives to be considered including the option of not going ahead with the activity**

- Land use development alternatives:  
The site layout may vary, depending on the operational requirements. However the final design and layout of the infrastructure have been planned and decided upon by the developer Kimswa Mining on the grounds of reserves, and placement of infrastructure based on hauling distance, environmental features such as wind direction, heritage findings, protected species, and stormwater management on the mine.
- No-go option:  
The following positive impacts will be lost if the proposed mining project is not developed:
  - o TAX and VAT obligations to SARS as well as Royalties;
  - o CAPEX spent locally and regionally;
  - o Employment opportunities;
  - o Payroll income;
  - o Operating expenditure and maintenance (OPEX);
  - o Revenue.

Mining activities are believed to be the most economically beneficial option for the area.

If the operation does not continue it would hold back any potential employment for the region and the families who are likely to benefit from the positive employment opportunities. Simultaneously, it may have a stagnant effect on the economy of South Africa and the diamond industry as a whole. Substantial tax benefits to the State and Local Government will also be inhibited.

Mining forms an integrated part of the social and economical growth of South Africa and more specifically the Northern Cape Province.

## **II) Description of the aspects to be assessed as part of the environmental impact assessment process**

(The EAP must undertake to assess the aspects affected by each individual mining activity whether listed or not, including activities such as blasting, Loading, hauling and transport, and mining activities such as Excavations, stockpiles, discard dumps or dams, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control berms, roads, pipelines, powerlines, conveyers, etc..etc...)

1. The clearing of vegetation for:
  - Access roads and haul roads
  - Surface Infrastructure
  - Product Stockpile area
  - Waste disposal site (domestic and industrial waste)
2. The stripping and stockpiling of topsoil.
3. Load and Haul Operation for the mining of alluvial gravels.
  - Loading, hauling.
4. Altering the characteristics of surface water features.
5. The development of temporary stockpiles:
  - Topsoil storage area;
  - Mine Residue Stockpile for “porrel”.
6. The rehabilitation of footprint areas where the open pits have been excavated.
7. The construction of Processing plant.
8. Loading, hauling and transporting of ROM, product and material
9. Water holding facilities, pipeline and stormwater control:
  - Clean & Dirty water system: Stormwaterdam / Water storage facility;
  - Water distribution Pipeline;
  - Water tank.
10. Fuel storage and refuelling bays;
  - Fuel Storage facility (Diesel tanks);
  - Concrete bund walls and diesel depots.
11. Supporting infrastructure:
  - Temporary Offices;
  - Office Parking Bay;
  - Temporary Workshop and Wash bay;
  - Salvage yard (Storage and laydown area);
  - Ablution facilities/ Sewage facilities;
  - Generators;
  - Pipelines transporting water;

**(II) Description of aspects to be assessed by specialists:**

The application are is within the Vaal River. The neccessary water studies (aquatic), ecological studies (that will include soil, fauna, flora) and heritage and palaentological studies will be done.

**(III) Proposed method of assessing the environmental aspects including the proposed method of assessing alternatives:**

The receiving environment will be determined using a combination of on-site observations, spatial information, project description, site layout and previous studies currently available to the EAP. Based on the EAPs knowledge and experience, the receiving environment will include geological features, topography, land use, archaeological and historical sites, surface water, groundwater, terrestrial ecology, air quality, noise, etc.

The identification of potential impacts of the mining activity will be based on the legal requirements; the nature of the proposed activity; the nature of the receiving environment; and issues raised during the public participation process. Considering the factors listed above and based on the EAPs knowledge and experience, environmental impacts that could potentially result from the mining activities include impacts on air quality, noise, fauna, flora, ground water, terrestrial ecology, heritage resources, socio-economy, aquatic environments, visuals, storm water and erosion.

The consideration of alternatives is a critical component of the EIA process, where an appropriate range of alternatives require consideration whilst achieving the desired objective of the proposed project. In order to ensure that the proposed project enables sustainable mining, a number of feasible options will be explored. The various alternatives in terms of land use, project infrastructure, mining method and proceeding without the mining operation will be assessed in terms of logistical practicality, environmental acceptability and economic feasibility. Alternatives for the locality of the mining operation will however not form part of this consideration, as the location of the mining site is determined by the geological location of the mineral resource.

**(IV) The proposed method of assessing duration significance:**

The lifetime of the impact will be measured in the context of the lifetime of the proposed phase or activity.

Weight	Duration of Impact	Explanation of Duration
1	Very Short	Less than 1 year
2	Short	1 to 5 years
3	Medium	6 to 15 years
4	Long term (Life of project)	16 to 50 years
5	Very Long term	Longer than 50 years
6	Permanent	Permanent

- **Short term**

The impact will either disappear with mitigation or will be mitigated through natural process in a short time period.

- **Medlum term**

The impact will last up to the end of the mining period, where after it will be entirely negated.

- **Long term**  
The impact will continue or last for the entire operational life of the mine, but will be mitigated by direct human action or by natural processes thereafter.
- **Permanent**  
The only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.

**(v) The stages at which the Competent Authority will be consulted:**

Consultation with the Competent Authority will take place throughout the application process, however more specifically; consultation will take place before submission of the Scoping Report and again before submission of the EIA/EMPR Report.

**(vi) Particulars of the public participation process with regard to the Impact Assessment process that will be conducted:**

**1. Steps to be taken to notify interested and affected parties:**

(These steps must include the steps that will be taken to ensure consultation with the affected parties identified in (h)(ii) herein.)

The consultation process as described by NEMA for Environmental Authorisation was followed and is still in process. The following steps were already taken:

Description of the consultation process:-

- Notification letters were sent to all interested and/or affected parties on the 31 October 2018. Attached to each of these letters was a Background Information Document (BID), containing information relating to proposed project.
- A newspaper advert was placed in the DFA (Diamond Fields Advertiser) local newspaper on the 1 November 2018.
- Notices were also placed at the Gong Gong clinic, Shop, Kelsikama cemetery, Gong Gong cemetery.
- Meeting will be held with the Department responsible for state land and the Priel CPA.
- Comments or replies received will be handled individually.

Proof of notification and consultation is attached as Appendix 3. The consultation process is still in process.

The draft Scoping and Environmental Impact Assessment will be circulated to all registered interested and affected parties.

**2. Details of the engagement process to be followed:**

(Describe the process to be undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings and record of such consultation will be required in the EIA at a later stage.)

The following procedures will be followed:

- Public meetings will be held with registered IAPs at suitable venues and on appropriate dates, depending on the feedback received during the consultation process.
- An IAP register will be compiled and regular and ongoing follow-up sessions will be held with the IAPs to monitor those issues raised during the IAP process and that are deemed to be affected by the mining operation.
- BID documents will be sent to all registered IAPs and other documentation (Scoping, EMP and EMPR) will be made available in public libraries.
- Records will be kept of the complaints and the mitigation measures implemented.

### **3. Description of the information to be provided to Interested and Affected Parties:**

(Information to be provided must include the initial site plan and sufficient detail of the intended operation and the typical impacts of each activity, to enable them to assess what impact the activities will have on them or on the use of their land.)

The following information will be provided to IAPs:

- The site plan;
- List of activities to be authorised;
- Scale and extent of activities to be authorised;
- Typical impacts of activities to be authorised;
- The duration of the activity.

The following information will be requested from the IAPs:

- 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 their 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. They will be 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).

### **(vii) Description of the tasks that will be undertaken during the environmental impact assessment process:**

#### **Determining environmental attributes**

The receiving environment will be determined using a combination of on-site observations, spatial information, project description, site layout and previous studies currently available to the EAP. Based on the EAPs knowledge and experience, the receiving environment will include geological features, topography, land use, archaeological and historical sites, surface water, groundwater, terrestrial ecology, air quality, noise, etc.

### Identification of impacts and risks

The Identification of potential Impacts of the mining activity will be based on the legal requirements; the nature of the proposed activity; the nature of the receiving environment; and issues raised during the public participation process.

Considering the factors listed above and based on the EAPs knowledge and experience, environmental Impacts that could potentially result from the mining activities include impacts on air quality, noise, fauna, flora, ground water, surface water, terrestrial ecology, heritage resources, socio-economy, aquatic environments, visuals, stormwater and erosion.

### Consideration of alternatives

The consideration of alternatives is a critical component of the EIA process, where an appropriate range of alternatives require consideration whilst achieving the desired objective of the mining project. In order to ensure that the proposed project enables sustainable mining, a number of feasible options will be explored. The various alternatives in terms of land use, project infrastructure, mining method and proceeding without the mining operation will be assessed in terms of logistical practicality, environmental acceptability and economic feasibility.

Alternatives for the locality of the mining operation will however not form part of this consideration, as the location of the mining site is determined by the geological location of the mineral resource.

### Process to assess and rank impacts

Before any assessment can be made the following evaluation criteria need to be described

**Table 4: Explanation of PROBABILITY of Impact occurrence**

Weight	Probability of Impact Occurrence	Explanation of Probability
1	Very Low	<20% sure of particular fact or likelihood of impact occurring
2	Low	20 – 39% sure of particular fact or likelihood of impact occurring
3	Moderate	40 – 59% sure of particular fact or likelihood of impact occurring
4	High	60 – 79% sure of particular fact or likelihood of impact occurring
5	Very High	80 – 99% sure of particular fact or likelihood of impact occurring
6	Definite	100% sure of particular fact or likelihood of impact occurring

**Table 5: Explanation of EXTENT of Impact**

Weight	Extent of Impact	Explanation of Extent
1	Site Specific	Direct and Indirect Impacts limited to site of Impact only
2	Surrounding Area	Direct and Indirect impacts affecting environmental elements within 2 km of site
3	Local Municipality	Direct and Indirect Impacts affecting environmental elements within the

		<b>Barkly-Wes area</b>
4	Regional/District	Direct and Indirect impacts affecting environmental elements within District (Frances Baard District)
5	Provincial	Direct and Indirect impacts affecting environmental elements in the Northern Cape Province

**Table 6: Explanation of DURATION of impact**

Weight	Duration of Impact	Explanation of Duration
1	Very Short	Less than 1 year
2	Short	1 to 5 years
3	Medium	6 to 15 years
4	Long term (Life of project)	16 to 50 years
5	Very Long term	Longer than 50 years
6	Permanent	Permanent

**Table 7: Explanation of SEVERITY of the Impact**

Weight	Impact Severity	Explanation of Severity
1	No impact	There will be no impact at all – not even a very low impact on the system or any of its parts.
2	Very Low	Impact would be negligible. In the case of negative impacts, almost no mitigation and/or remedial activity would be needed, and any minor steps which might be needed would be easy, cheap and simple. In the case of positive impacts alternative means would almost all likely to be better, if one or a number of ways, then this means of achieving the benefit.
3	Low	Impact would be of a low order and with little real effect. In the case of negative impacts, mitigation and/or remedial activity would be either easily achieved or little would be required or both. In the case of positive impacts alternative means for achieving this benefit would be easier, cheaper, more effective, less time-consuming, or some combination of these.
4	Moderately Severe	Impact would be real but not substantial within the bounds of those which could occur. In the case of negative impacts, mitigation and/or remedial activity would be both feasible and fairly easily possible. In the case of positive impacts other means other means of covering these benefits would be about equal in cost and effort.
5	High Severance	Impacts of substantial order. In the case of negative impacts, mitigation and/or remedial activity would be feasible but difficult, expensive, time consuming or some combination of these. In the case of positive impacts other means of achieving this benefit would be feasible, but these would be more difficult, expensive, time-consuming or some combination of these.
6	Very High Severity	Of the highest order possible within the bounds of impacts which could occur, in the case of negative impacts, there would be no possible mitigation and/or remedial activity to offset the impact at the spatial or time scale for which was predicted. In the case of positive impacts there is no real alternative to achieving the benefit.

### **Methodology used in determining and ranking the nature, severity, consequences, extent, duration and probability of potential environmental impacts and risks**

The criteria used to assess the significance of the impacts are shown in the table below. The limits were defined in relation to mining characteristics. Those for probability, intensity/severity and significance are subjective, based on rule-of-thumb and experience. Natural and existing



mitigation measures were considered. These natural mitigation measures were defined as natural conditions, conditions inherent in the project design and existing management measures, which alleviate impacts. The significance of the impacts was calculated by using the following formula:

$(\text{Severity} + \text{Extent} + \text{Duration}) \times \text{Probability weighting}$

For the impact assessment, the different project activities and associated infrastructure were identified and considered in order to identify and analyse the various possible impacts.

**Table 8**

SIGNIFICANCE				
Colour Code	Significance rating	Rating	Negative Impact	Positive Impact
	Very low	3 -16	Acceptable/Not serious	Marginally Positive
	Low	17 - 22	Acceptable/Not serious	Marginally Positive
	Medium-Low	23 -33	Acceptable/Not desirable	Moderately Positive
	Medium	34 - 48	Generally undesirable	Beneficial
	Medium-High	49 - 56	Generally unacceptable	Important
	High	57 - 70	Not Acceptable	Important
	Very High	90 - 102	Totally unacceptable	Critically Important

**Significance of Impacts is defined as follows:**

**Very Low** - Impact would be negligible. Almost no mitigation and/or remedial activity would be needed, and any minor steps which might be needed would be easy, cheap and simple.

**Low** - Impact would have little real effect. Mitigation and/or remedial activity would be either easily achieved or little would be required or both.

**Medium Low-** Impact would be real but not substantial within the bounds of those which could occur. Mitigation and/or remedial activity would be both feasible and fairly easily possible.

**Medium** - Impact would be real but not substantial within the bounds of those which could occur. Mitigation and/or remedial activity would be feasible and possible.

**Medium High-** Impact would be real but could be substantial within the bounds of those which could occur. Mitigation and/or remedial activity would be both feasible and possible but may be difficult and or costly.

**High** - Impacts of substantial order. Mitigation and/or remedial activity would be feasible but difficult, expensive, time consuming or some combination of these.

**Very High** - Of the highest order possible within the bounds of impacts which could occur. There would be no possible mitigation and/or remedial activity to offset the impact at the spatial or time scale for which was predicted.

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

ACTIVITY Whether listed or not listed (e.g. excavations, blasting, stockpiles, discard dumps or dams, loading, hauling and transport, water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelanes, power lines, conveyors, etc....etc...)	POTENTIAL IMPACT (e.g. dust, noise, drainage, surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc.... etc...)	MITIGATION TYPE modify, remedy, control or stop (e.g. noise control measures, stormwater control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc....etc...) (e.g. modify through alternative method. Control through management and monitoring through rehabilitation.)	POTENTIAL FOR RESIDUAL RISK
Ablution facilities Chemical toilets	<ul style="list-style-type: none"> <li>• Soil contamination</li> <li>• Groundwater contamination</li> <li>• Odours</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance of chemical toilets on regular basis.</li> <li>• Removal of containers upon closure.</li> </ul>	Very low
Clean & Dirty water system	<ul style="list-style-type: none"> <li>• Surface disturbance</li> <li>• Groundwater contamination</li> <li>• Soil contamination</li> <li>• Surface water contamination</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance of berms and trenches.</li> <li>• Oil traps used in relevant areas.</li> <li>• Drip trays used.</li> <li>• Immediately clean hydrocarbon spill.</li> </ul>	Low
Diesel tanks	<ul style="list-style-type: none"> <li>• Groundwater contamination</li> <li>• Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>• Soil contamination</li> <li>• Surface disturbance</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance of diesel tanks and bund walls.</li> <li>• Oil traps.</li> <li>• Groundwater quality monitoring.</li> <li>• Drip tray at re-fuelling point.</li> <li>• Immediately clean hydrocarbon spill.</li> </ul>	Medium
Opencast Alluvial Diamond mining	<ul style="list-style-type: none"> <li>• Dust</li> <li>• Possible Groundwater contamination</li> <li>• Noise</li> <li>• Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>• Soil contamination</li> <li>• Surface disturbance</li> <li>• Surface water contamination</li> </ul>	<ul style="list-style-type: none"> <li>• Access control</li> <li>• Dust control and monitoring</li> <li>• Groundwater quality monitoring</li> <li>• Noise control and monitoring</li> <li>• Continuous rehabilitation</li> <li>• Stormwater run-off control</li> <li>• Immediately clean hydrocarbon spill</li> <li>• Drip trays</li> <li>• Erosion control</li> </ul>	Medium-High

Generators	<ul style="list-style-type: none"> <li>• Groundwater contamination</li> <li>• Noise</li> <li>• Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>• Soil contamination</li> <li>• Surface disturbance</li> </ul>	<ul style="list-style-type: none"> <li>• Access control</li> <li>• Maintenance of generator and bund walls</li> <li>• Noise control and monitoring</li> <li>• Oil traps</li> <li>• Groundwater quality monitoring</li> <li>• Immediately clean hydrocarbon spill</li> </ul>	Medium
Office – Pre-fabricated office blocks on concrete	<ul style="list-style-type: none"> <li>• Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>• Soil contamination</li> <li>• Surface disturbance</li> </ul>	<ul style="list-style-type: none"> <li>• Immediately clean hydrocarbon spill</li> <li>• Rip disturbed areas to allow re-growth of vegetation cover</li> </ul>	Very low
Parking bay	<ul style="list-style-type: none"> <li>• Dust</li> <li>• Groundwater contamination</li> <li>• Noise</li> <li>• Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>• Surface disturbance</li> </ul>	<ul style="list-style-type: none"> <li>• Dust control and monitoring</li> <li>• Noise control and monitoring</li> <li>• Drip trays</li> <li>• Stormwater run-off control.</li> <li>• Immediately clean hydrocarbon spills</li> <li>• Rip disturbed areas to allow re-growth of vegetation cover</li> </ul>	Low
Processing plant	<ul style="list-style-type: none"> <li>• Dust</li> <li>• Noise</li> <li>• Groundwater contamination</li> <li>• Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>• Soil contamination</li> <li>• Surface disturbance</li> </ul>	<ul style="list-style-type: none"> <li>• Access control</li> <li>• Maintenance of processing plant</li> <li>• Dust control and monitoring</li> <li>• Groundwater quality and level monitoring</li> <li>• Noise control and monitoring</li> <li>• Drip trays</li> <li>• Stormwater run-off control.</li> <li>• Immediately clean hydrocarbon spills</li> <li>• Rip disturbed areas to allow re-growth of vegetation cover</li> </ul>	Medium
Water distribution Pipeline	<ul style="list-style-type: none"> <li>• Surface disturbance</li> <li>• Possible Groundwater contamination</li> <li>• Soil contamination</li> <li>• Surface water contamination</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance of pipes.</li> </ul>	Low
Roads	<ul style="list-style-type: none"> <li>• Dust</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance of roads</li> </ul>	Low

	<ul style="list-style-type: none"> <li>Possible Groundwater contamination</li> <li>Noise</li> <li>Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>Surface disturbance</li> </ul>	<ul style="list-style-type: none"> <li>Dust control and monitoring</li> <li>Noise control and monitoring</li> <li>Speed limits</li> <li>Stormwater run-off control.</li> <li>Erosion control</li> <li>Immediately clean hydrocarbon spills</li> <li>Rip disturbed areas to allow re-growth of vegetation cover</li> </ul>	
Salvage yard	<ul style="list-style-type: none"> <li>Possible Groundwater contamination</li> <li>Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>Soil contamination</li> <li>Surface disturbance</li> <li>Surface water contamination</li> </ul>	<ul style="list-style-type: none"> <li>Access control</li> <li>Maintenance of fence.</li> <li>Stormwater run-off control</li> <li>Immediately clean hydrocarbon spill</li> </ul>	Low
Stockpile area	<ul style="list-style-type: none"> <li>Dust</li> <li>Possible Groundwater contamination</li> <li>Noise</li> <li>Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>Surface disturbance</li> </ul>	<ul style="list-style-type: none"> <li>Dust control and monitoring</li> <li>Noise control and monitoring</li> <li>Drip trays</li> <li>Stormwater run-off control.</li> <li>Immediately clean hydrocarbon spills</li> <li>Rip disturbed areas to allow re-growth of vegetation cover</li> </ul>	Low
Topsoil storage area	<ul style="list-style-type: none"> <li>Dust</li> <li>Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>Soil disturbance</li> <li>Surface disturbance</li> </ul>	<ul style="list-style-type: none"> <li>Dust control and monitoring</li> <li>Stormwater run-off control.</li> <li>Continuous rehabilitation</li> <li>Rip disturbed areas to allow re-growth of vegetation cover</li> <li>Backfilling of topsoil during rehabilitation</li> </ul>	Low
Waste disposal site	<ul style="list-style-type: none"> <li>Groundwater contamination</li> <li>Surface water contamination</li> </ul>	<ul style="list-style-type: none"> <li>Storage of waste within receptacles</li> <li>Storage of hazardous waste on concrete floor with bund wall</li> <li>Removal of waste on regular intervals.</li> </ul>	Low
Mine Residue Deposit – Slimes	<ul style="list-style-type: none"> <li>Dust</li> <li>Possible Groundwater contamination</li> </ul>	<ul style="list-style-type: none"> <li>Dust control and monitoring</li> <li>Groundwater quality monitoring</li> </ul>	Low

	<ul style="list-style-type: none"> <li>• Noise</li> <li>• Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>• Surface disturbance</li> </ul>	<ul style="list-style-type: none"> <li>• Noise control and monitoring</li> <li>• Stormwater run-off control.</li> <li>• Rip disturbed areas to allow re-growth of vegetation cover</li> </ul>	
Washbay	<ul style="list-style-type: none"> <li>• Possible Groundwater contamination</li> <li>• Removal and disturbance of vegetation cover and natural habitat of fauna</li> <li>• Soil contamination</li> </ul>	<ul style="list-style-type: none"> <li>• Groundwater quality and level monitoring</li> <li>• Concrete floor with oil/water separator</li> <li>• Stormwater run-off control</li> <li>• Immediately clean hydrocarbon spills</li> </ul>	LOW
Water tank: It is anticipated that the operation will establish 1 x 10 000 litre water tanks with purifiers for potable water.	<ul style="list-style-type: none"> <li>• Vaal river water and usage</li> <li>• Surface disturbance</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor water quality and quantity</li> <li>• Maintenance of tanks (check for leaks).</li> </ul>	LOW

**(ix) Other Information required by the Competent Authority:****1. Compliance with the provisions of Sections 24(4)(a) and (b) read with Section 24(3)(a) and (7) of the National Environmental Management Act (Act 107 of 1998), the EIA report must include the:-****a. Impact on the socio-economic conditions of any directly affected person:**

(Provide the results of investigation, assessment and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as Appendix '7' and confirm that the applicable mitigation is reflected in 2.5.3, 2.11.6 and 2.12 herein.)

The socio-economic conditions of the local community could be affected in two ways:

- Negative impacts to the welfare of the residents and workers through general nuisance, dust generation, damages to properties and any associated potential safety risks.
- Positive impacts through job creation and local business opportunities.
- The consultation with interested and affected parties is on-going and any issues, concerns or comments will be considered and included in the EIA report and control measures will be presented in the EMP report.

**b. Impact on any national estate referred to in Section 3(2) of the National Heritage Resources Act:**

(Provide the results of investigation, assessment and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in Section 3(2) of the National Heritage Resources Act, 1999 (Act 25 of 1999) with the exception of the national estate contemplated in Section 3(2)(l)(vi) and (vii) of that Act, attach the investigation report as Appendix '8' and confirm that the applicable mitigation is reflected in 2.5.3, 2.11.6 and 2.12 herein.)

No evidence could as yet be found of any such sites and/or objects on the site itself. The necessary specialist studies will be done and included into the EIA EMP documents.

Should any heritage features and/or objects be located or observed, a heritage specialist will be contacted immediately. Observed or located heritage features and/or objects may not be disturbed or removed in any way until such time that a heritage specialist has been able to make an assessment as to the significance of the site (or material) in question. This is true for graves and cemeteries as well.

**(x) Other matters required in terms of Sections 24(4)(a) and (b) of the Act:**

(The EAP managing the application must provide the Competent Authority with details, written proof of an investigation as required by Section 24(4)(b)(l) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in sub-regulation 22(2)(h), exist. The EAP must attach such motivation as Appendix '9'.)

As mentioned before, the specific occurrence of diamonds in the area dictates the selection of the specific mining site and there are no alternatives in terms of project location.

The mining operation will provide ±10 jobs and will also add to the increased economic activity and the area surrounding the farm.

Negative impacts on the area are expected to be temporary and can be mitigated to a large extent if the recommendations of the EMPR area adhered to e.g. rehabilitation.

**(xi) Undertaking regarding correctness of Information:**

I, RH Oosthuizen, ID number 7004180037082, herewith undertake that the information provided in the foregoing report is correct, and that the comments and inputs from stakeholders and Interested and Affected Parties has been correctly recorded in the report.



Signature of EAP

Date: 19 November 2018

**(xii) Undertaking regarding level of agreement:**

I, RH Oosthuizen, ID number 7004180037082, herewith undertake that the information provided in the foregoing report is correct, and that the level of agreement with Interested and Affected Parties and stakeholders has been correctly recorded and reported herein.



Signature of EAP

Date: 19 November 2018

- END -

**APPENDIX 1****CURRICULUM VITAE – RH OOSTHUIZEN****PERSONAL DETAILS**

**FULL NAMES AND SURNAME** : Roelina Henrlëtte Oosthuizen

**DATE OF BIRTH** : 18 April 1970

**I.D. NO** : 700418 0037 08 2

**MARITAL STATUS** : Married

**CITIZENSHIP** : Republic of South Africa

**RESIDENTIAL ADDRESS** : Farm Oberon  
Kimberley

**POSTAL ADDRESS** : P.O. Box 110823  
Hadisonpark  
Kimberley  
8306

**E-MAIL ADDRESS** : roosthuizen950@gmail .com

**CEL NO** : 084 208 9088

**DRIVER'S LICENCE** : EB

**LANGUAGES** : Afrikaans (home language)  
English

**QUALIFICATIONS**

**2000** UNIVERSITY OF THE ORANGE FREE STATE  
Qualification: Master In Environmental Management.

**1991** NORTH WEST UNIVERSITY  
Qualification: B – Comm: Industrial psychology.

**1988** BRITSHIGH SCHOOL (BRITS)  
Qualification: Matric



## COURSES and Conferences ATTENDED

**I have attended various mining and environmental conferences and seminars to stay abreast with the latest changes in legislation, legal compliance and policy positions in the sector.**

<b>August 1994</b>	<b>Junior Managers (Public Service Training Institute)</b>
<b>November 1994</b>	<b>Mineral Laws Administration (Public Service Training Institute)</b>
<b>October 1997</b>	<b>Mineral Laws Administration &amp; Environmental Management (University of Pretoria)</b>
<b>July 2002</b>	<b>Project Management for Environmental Systems (University of the Orange Free State)</b>
<b>August 2004</b>	<b>Environmental and Sustainability in Mining Minerals and Energy Education and Training Institute (MEETI)</b>
<b>September 2005</b>	<b>Converting Old Order Rights to New Order Rights in Mining (International Quality &amp; Productivity Centre Johannesburg)</b>
<b>November 2006</b>	<b>Mine waste disposal and Achievement of Mine Closure</b>
<b>February 2007</b>	<b>Introduction to ArcGis 1</b>
<b>April 2010</b>	<b>Mining Law Update Conference (IIR BV South Africa)</b>
<b>November 2010</b>	<b>Social Labour Plans for Mining Workshop (Melrose Training)</b>
<b>August 2011</b>	<b>Mineral Resources Compliance and Reporting (ITC)</b>
<b>May 2012</b>	<b>Enviro Mining Conference 2012 (Sustainability and Rehabilitation) (Spectacular Training Conferences)</b>
<b>August 2012</b>	<b>Mineral Resources Compliance and Reporting 4<sup>th</sup> Annual (ITC)</b>
<b>March 2013</b>	<b>1st Enviro Mining-Ensuring Environmental Compliance and reporting</b>
<b>March 2014</b>	<b>4<sup>th</sup> Annual Enviro Mining Conference</b>
<b>March 2015</b>	<b>5<sup>th</sup> Annual Enviro Mining Conference</b>

**CAREER HISTORY*****Wadala Mining and Consulting (Pty) Ltd:***

**ADDRESS** : Farm Oberon  
Kimberley  
8301

**PERIOD OF EMPLOYMENT** : 01 August 2013 - Part time

**POSITION HELD** : Mineral Law Administration and Environmental  
Manager

***Diacor Closed Corporation:***

**ADDRESS** : 6 Mullin Street  
Hadisonpark  
Kimberley  
8306

**PERIOD OF EMPLOYMENT** : 01 October 2013 – Present and part time consultancy  
work

**POSITION HELD** : Mineral Law Administration and Environmental  
Manager

***Mentor Trading and Investments 52 (Pty) Ltd:***

**ADDRESS** : 2 Kekewich Drive  
Monridge Office Park no 6  
Monument Heights  
Kimberley  
8301

**PERIOD OF EMPLOYMENT** : 01 October 2012 – 01 October 2013

**POSITION HELD** : Mineral Law Administration and Environmental  
Manager

***Rockwell Diamonds Inc:***

**ADDRESS** : PO Box 251  
BARKLY-WES  
8375

**PERIOD OF EMPLOYMENT** : 01 March 2005 – 30 September 2012

**POSITION HELD** : **Mineral Law Administration and Environmental Manager**

**MAIN JOB FUNCTIONS**

- Collect analyse and interpret information regarding the measurement of impacts of mining operations on the environment, the rehabilitation of land surfaces.
- The prevention, control and combating of pollution.
- Co-ordinate, investigate, audit and resolve environmental problems in conjunction with the Department of Water and Sanitation, Department of Agriculture and the provincial Department of Tourism, Environment and Conservation.
- Address complaints and inquiries received from the public and mining industry.
- Consult with relevant authorities and interested and affected people regarding the approval of Environmental Management Programmes.
- Ensuring that rehabilitation standards are applied.
- Ensuring that the requirements stated in Environmental Management Programme Reports are adhered to.
- Evaluate Mining Rights and Prospecting Right applications and recommend site-specific conditions according to legislative requirements.
- Constant liaison with the public, the mining industry and other government authorities on Environmental matters, legislation and agreements.
- Calculate and verify financial provision for outstanding rehabilitation.

**DEPT OF MINERALS & ENERGY:**

**ADDRESS** : 43 Chapel Street  
Standard Bank Building  
KIMBERLEY

**PERIOD OF EMPLOYMENT** : 01 April 1997 to 01 March 2005

**POSITION HELD** : **Senior Environmentalist - Assistant Director Environment**

**MAIN JOB FUNCTIONS**

- :
- Collect analyse and interpret information regarding the measurement of impacts of mining operations on the environment, the rehabilitation of land surfaces.
  - The prevention, control and combating of pollution.

**SCOPING REPORT – KIMSWA MINING(PTY) LTD**

- Co-ordinate and prioritise the rehabilitation of derelict and ownerless mines.
- Co-ordinate, investigate, audit and resolve environmental problems in conjunction with the Department of Water Affairs and Forestry, Department of Agriculture and the provincial Department of Tourism, Environment and Conservation.
- Address complaints and inquiries received from the public and mining industry.
- Consult with relevant authorities and interested and affected people regarding the approval of Environmental Management Programmes.
- Ensuring that rehabilitation standards are applied.
- Ensuring that the requirements stated in Environmental Management Programme Reports are adhered to.
- Conduct inspections and recommendations on mines that apply for closure.
- Evaluate mining licences and prospecting applications and recommend site-specific conditions according to legislative requirements.
- Constant liaison with the public, the mining industry and other government authorities on environmental matters, legislation and agreements.
- Influence new development processes through participation in the EMPR and EIA processes and give guidance through education and awareness programmes.
- Calculate and verify financial provision for outstanding rehabilitation.

***DEPT. OF MINERALS AND ENERGY:***

**POSITION HELD** : Assistant Mineral Laws Officer – Senior Mineral Laws Officer

**PERIOD OF EMPLOYMENT** : 01 November 1993 – March 1997

***ADVISORY COMMISSION ON LAND ALLOCATION***

**POSITION HELD** : Assistant Administrative Officer

**PERIOD OF EMPLOYMENT** : 10 February 1992 – October 1993

## Experience Projects Completed

I am a dedicated professional Mineral Law Administration and Environmental Manager with 23 years extensive experience in the managing and mitigating of specifically mining related impacts. I started my career in 1993 in the Department of Minerals and Energy where I have done Environmental inspections with site visits on all mines in the Northern Cape. I have done Environmental Audits on operational and closed mining sites in collaboration with other Departments. I have also specifically looked at pollution control measures on mining sites and the effectiveness of these measures. I have evaluated submitted EIA /EMP documents and have worked closely with all other Departments and stakeholders to make sure that all environmental aspects have been dealt with adequately in submitted documents. I left the Department for the Private Sector in 2005. I have since worked for a Canadian Group of Companies in the Private Sector, started a consultancy where I provide various mining companies with professional advice and guidance on Mineral Law and Environmental Issues. I have also represented the South African Diamond Producers Organisation (SADPO) on the Environmental Policy Committee (EPC) at the Chamber of Mines between 2005 and 2011.

### 2005

**Environmental Management Plan with an application for a Prospecting Right for diamonds on Portion 9 and 14 of the farm Lanyon Vale 376, Hay in terms of Section 16(4) and Regulation 52 of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002)**

**EMPlan was approved in August 2007 with the Prospecting Right**

**Client: HC van Wyk Diamonds Ltd**

**Environmental Management Plan with an application for a Prospecting Right for diamonds on Remainder of Portion 18 (a portion of Portion 10) of the farm Lanyon Vale 376, Hay in terms of Section 16(4) and Regulation 52 of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002)**

**EMPlan was approved in August 2007 with the Prospecting Right**

**Client: HC van Wyk Diamonds Ltd**

**Environmental Management Plan with an application for a Prospecting Right for diamonds on Remainder of Portion 1, Portion 2 (a Portion of Portion 1), Portion 3 and Portion 5 of the farm Zweet Fontein nr 76 and Remainder of Portion 1 and portion 3 of the farm Blaaubosch Drift nr 78, Herbert in terms of Section 16(4) and Regulation 52 of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002)**

**EMPlan was approved in August 2007 with the Prospecting Right**

**Client: HC van Wyk Diamonds Ltd**

### 2006

**Environmental Management Plan with an application for a Prospecting Right for Tin in Kakamas South Settlement, Kakamas in terms of Section 16(4) and Regulation 52 of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002)**

**EMPlan was approved in June 2011 with the Prospecting Right**

**Client: Douglas Mining and Exploration (Pty) Ltd**

**2007**

**Environmental Management Plan with an application for a Prospecting Right for diamonds on the Remaining Extent, Portion 1 and Portion 2 of Diamond Valley 29, Hopetown in terms of Section 16(4) and Regulation 52 of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002)**

**EMPlan was approved in April 2008 with the Prospecting Right**

**Client: HC van Wyk Diamonds Ltd**

**2008**

**Environmental Management Plan with an application for a Prospecting Right for diamonds on Portion 12, 13, 16, 24 & 25 Saxendrift 20 in terms of Section 16(4) and Regulation 52 of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002)**

**EMPlan was approved in June 2008 with the Prospecting Right**

**Client : HC van Wyk Diamonds Ltd**

**Environmental Management Plan with an application for a Prospecting Right for diamonds on Erf 1 Windsorton, Barkly-Wes in terms of Section 16(4) and Regulation 52 of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002)**

**EMPlan was approved in February 2009 with the Prospecting Right**

**Client: HC van Wyk Diamonds Ltd**

**2009**

**ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENTAL MANAGEMENT PROGRAMME SUBMITTED FOR AN APPLICATION FOR A MINING RIGHT CONVERSION IN TERMS OF SECTION 39 & OF REGULATION 50 & 51 OF THE MPRDA, 2002 (ACT NO. 28 OF 2002) for Wouterspan Mine (The Farm Lanyon Vale 376, Hay)**

**EIA/EMP approved on 25/01/2010**

**Client: HC van Wyk Diamonds Ltd**

**ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENTAL MANAGEMENT PROGRAMME SUBMITTED FOR AN APPLICATION FOR A MINING RIGHT CONVERSION IN TERMS OF SECTION 39 & OF REGULATION 50 & 51 OF THE MPRDA, 2002 (ACT NO. 28 OF 2002) for GW Ziegler on Remainder, Remainder of portion 1 (Amantia) and portion 2 (a portion of portion 1) of the farm Rietputs no. 15 and portion 1 (Spenceskop) of the farm Waterval no.14 in the district of Kimberley**

**EIA/EMP approved with conversion of the Mining Right**

**Client: GW Ziegler**

**2010**

**Basic Assessment Application**

**Application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2006**

**PROPOSED EXTENTION OF A ROOF OVER AN EXCISTING DECK WITH TWO WOOD PILLARS BY MEANS OF THE EXCAVATING OF 0.5m X 0.5m X 1m X 2 (½m<sup>2</sup>) OF SOIL WITHIN 100M OF THE HIGH WATER MARK OF THE SEA**

**Falls within general notes under activities that requires basic assessment**

**Positive Record of Decision (ROD) Granted.**

**Client: Dr. Petrus van der Walt Vermeulen**

**REVISION OF ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENTAL MANAGEMENT PROGRAMME SUBMITTED FOR AN APPLICATION FOR A MINING RIGHT CONVERSIONS IN TERMS OF SECTION 39 & OF REGULATION 50 & 51 OF THE MPRDA, 2002 (ACT NO. 28 OF 2002) for HC VAN WYK DIAMONDS LTD (204 MRC) ON REMAINING EXTENT OF HOLPAN 161, BARKLY-WES AND KLIPDAM DIAMOND MINING CO (003MRC) ON REMAINING EXTENT OF KLIPDAM 157, BARKLY-WES**

**Client: HC van Wyk Diamonds Ltd and Klipdam Diamond Mining Company Ltd**

**2011**

**APPLICATION FOR A LICENCE REGARDING PROTECTED TREES [SECTION 15(1) OF THE NATIONAL FORESTS ACT, 1998, AS AMENDED] on PORTION 1 (PAARDE PAN) OF THE FARM ANNEX SAXES DRIFT 21, HOPETOWN, NORTHERN CAPE for 14 Shephards tree (*Boscia albitunca*)**

**Licence issued on 24 September 2011**

**Client : Saxendrift Mine Pty Ltd**

**ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENTAL MANAGEMENT PROGRAMME SUBMITTED FOR AN APPLICATION FOR A MINING RIGHT CONVERSION IN TERMS OF SECTION 39 & OF REGULATION 50 & 51 OF THE MPRDA, 2002 (ACT NO. 28 OF 2002) on Portion 2 of the farm Good Hope 286, Barkly-Wes**

**EIA/EMP approved February 2013 by the Regional Manager**

**Client: Diacor CC**

**APPLICATION FOR CLOSURE CERTIFICATE [in terms of sections 43(3) of the Minerals and Petroleum Resources Development Act, 2002 (Act No 28 of 2002)] AND A CLOSURE PLAN FOR MINING ACTIVITIES PERFORMED BY HC VAN WYK DIAMONDS LTD ON THE REMAINING EXTENT OF PORTION 1 (WILLOWBANK), PORTION 2 (A PORTION OF PORTION 1) (WILLOWBANK), PORTION 3 (A PORTION OF PORTION 1) (WILLOWBANK) OF KHOSOPSKRAAL 227 AND PORTION 5 (ROSCOMMON) AND PORTION 2 (BORDON) OF HARRISDALE 226 AND FARM 362, BARKLY-WES CLOSURE WAS GRANTED IN JULY 2010**

**Client: HC VAN WYK DIAMONDS LTD**

**2012**

**APPLICATION FOR A LICENCE REGARDING PROTECTED TREES [SECTION 15(1) OF THE NATIONAL FORESTS ACT, 1998, AS AMENDED] on PORTION 1 OF THE FARM BRAKFORTEIN 276, HOPETOWN NORTHERN CAPE for 4Shephards tree (*Boscia albitunca*)**

**Licence NCU 2831112 issued in November 2012**

**Client: Jasper Mining Pty Ltd**

**2013**

**APPLICATION FOR A LICENCE REGARDING PROTECTED TREES [SECTION 15(1) OF THE NATIONAL FORESTS ACT, 1998, AS AMENDED] ON REMAINDER OF THE FARM NIEWEJAARSKRAAL NO 40, PRIESKA, NORTHERN CAPE. 30 SHEPPHARD'S TREES**

**Licence NCU 4290214 Issued In February 2014**

**Client: Saxendrift Mine (Pty) Ltd (Niewejaarskraal Mine)**

**AMENDMENT OF ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENTAL MANAGEMENT PROGRAMME SUBMITTED FOR A SECTION 11 APPLICATION OF A MINING RIGHT CONVERSION IN TERMS OF SECTION 39 & OF REGULATION 50 & 51 OF THE MPRDA, 2002 (ACT NO. 28 OF 2002) on The Farm Riets Drift no. 18, district**

**Client: Bo-Karoo Diamond Mining (Pty) Ltd to be ceded to Bondeo 140 CC.**

**2014**

**Application for a Water Users Licence Application in terms of Section 27 of the National Water Act no 36 of 1998 on the Farm Engelde Wlgeboomfontein 22, Prieska**

**Application still under review**

**Client: Thunderflex 78 (Pty) Ltd**

**ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENTAL MANAGEMENT PROGRAMME SUBMITTED FOR AN APPLICATION FOR A MINING RIGHT CONVERSION IN TERMS OF SECTION 39 & OF REGULATION 50 & 51 OF THE MPRDA, 2002 (ACT NO. 28 OF 2002) on Portion 1 of the farm Brakfontein 276 district of Hopetown**

**EIA/EMP approved April 2015 by the Regional Manager**

**Client: Jasper Mining (Pty) Ltd**

**Environmental Management Plan with an application for a Prospecting Right for diamonds on REMAINING EXTENT OF THE FARM MARKSDRIFT 3, HOPETOWN in terms of Section 16(4) and Regulation 52 of the Minerals and Petroleum Resources Development Act, 2002 (Act 28 of 2002) EMP was approved in April 2015 with the Prospecting Right**

**Client: BONDEO 140 CC**

**2015**

**ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENTAL MANAGEMENT PROGRAMME SUBMITTED FOR AN APPLICATION FOR A PROSPECTING RIGHT IN TERMS OF SECTION 39 & OF REGULATION 50 & 51 OF THE MPRDA, 2002 (ACT NO. 28 OF 2002) on Portion 1 of the farm Speculatie 217 district of Boshof**

**EIA/EMP has been accepted by the Regional Manager Free State Region**

**Client: Thaba Thafita Diamond Prospecting CC**

**ENVIRONMENTAL IMPACT ASSESSMENT & ENVIRONMENTAL MANAGEMENT PROGRAMME SUBMITTED FOR AN APPLICATION FOR A PROSPECTING RIGHT IN TERMS OF SECTION 39 & OF REGULATION 50 & 51 OF THE MPRDA, 2002 (ACT NO. 28 OF 2002) on a Portion of Erf 1318, Galeshewe, and a Portion of the Remainder Erf 5336, Kimberley**

**EIA/EMP still under review by the Regional Manager Northern Cape Region**

**Client: Mystic Pearl 157 (Pty) Ltd**



**2016**

**ANNUAL REHABILITATION PLAN for Associated Manganese Mines of South Africa Ltd  
Glosam Prospecting Area  
February 2016**

## REFERENCES

WG (Bill) Bartholomew  
PO Box 10034  
OUDTSHOORN  
6620  
Tel: +27(0)44 272 3054  
Mobile: +27(0)84 466 4411  
Fax: +27(0)86 608 8411  
email: [bartholomew@telkomsa.net](mailto:bartholomew@telkomsa.net)

Hennie van Wyk  
Member : Diacor CC  
Mobile: +27(0)828201879  
Email : [hennie@goodhopereserve.co.za](mailto:hennie@goodhopereserve.co.za)

Name of the Practitioner: Dr Elizabeth (Betsie) Milne  
Tel No.: 082 992 1261  
Fax No.: N/A (No fax)  
E-mail address: [betsiemilne@gmail.com](mailto:betsiemilne@gmail.com)

*The End*



## APPENDIX 1

DIE UNIVERSITEIT  
VAN DIE ORANJE-  
VRYSTAAT



THE UNIVERSITY  
OF THE ORANGE  
FREE STATE

HIERMEE WORD VERKLAAR DAT DIE GRAAD THIS IS TO CERTIFY THAT THE DEGREE

**Magister in Omgewingsbestuur**  
**Master in Environmental Management**

TOEGEKEN IS AAN  
HAS BEEN CONFERRED UPON

**ROELINA HENRIËTTE OOSTHUIZEN**

NADAT AAN DIE STATUTE EN REGULASIES VAN IN ACCORDANCE WITH THE STATUTES AND  
DIE UNIVERSITEIT VOLDOEN IS. AS BEWYS REGULATIONS OF THE UNIVERSITY. AS  
DAARVAN PLAAS ONS ONS ONDERSKEIE WITNESS OUR RESPECTIVE SIGNA-  
HANDTEKENINGE EN DIE SEBL VAN DIE TURES AND THE SEAL OF THE  
UNIVERSITEIT HIERONDER. UNIVERSITY BELOW.



*A-J Booitze*

.....  
VISEKANSIELER/VICE-CHANCELLOR

*G. N. van Wyk*

.....  
DEKAAN/DEAN

*[Signature]*

.....  
REGISTRATEUR/REGISTRAR

.....  
RECEIVED IN  
2019 09 16

