



## **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 PROSPECTING.**

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:** WEDBERG COMMUNAL PROPERTY ASSOCIATION

**TEL NO:** 053 551 0089

**FAX NO:** 086 609 8740

**POSTAL ADDRESS:** PO BOX 82, WINDSORTON, 8510

**PHYSICAL ADDRESS:** 448 FRERE STREET, WINDSORTON, 8510

**EXISTING RIGHT REFERENCE NUMBER:** NC 01/2012 PPR

**FILE REFERENCE NUMBER SAMRAD:** NC-00047-PR/102



### 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 permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.

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

### OBJECTIVE OF THE SCOPING PROCESS

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

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

**SCOPING REPORT**

**a) Details of the EAP**

**i) Details of the EAP**

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

**ii) Expertise of the EAP**

▪ **The qualifications of the EAP**

PhD in Botany (NMMU)  
Masters in Environmental Management (UFS)  
BTech in Nature Conservation (TUT)

(Please find resume and certificates attached as **Appendix 1**)

▪ **Summary of the EAP's past experience**

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

(Please find list of completed projects attached as **Appendix 2**)

## Scoping Report – Wedberg CPA

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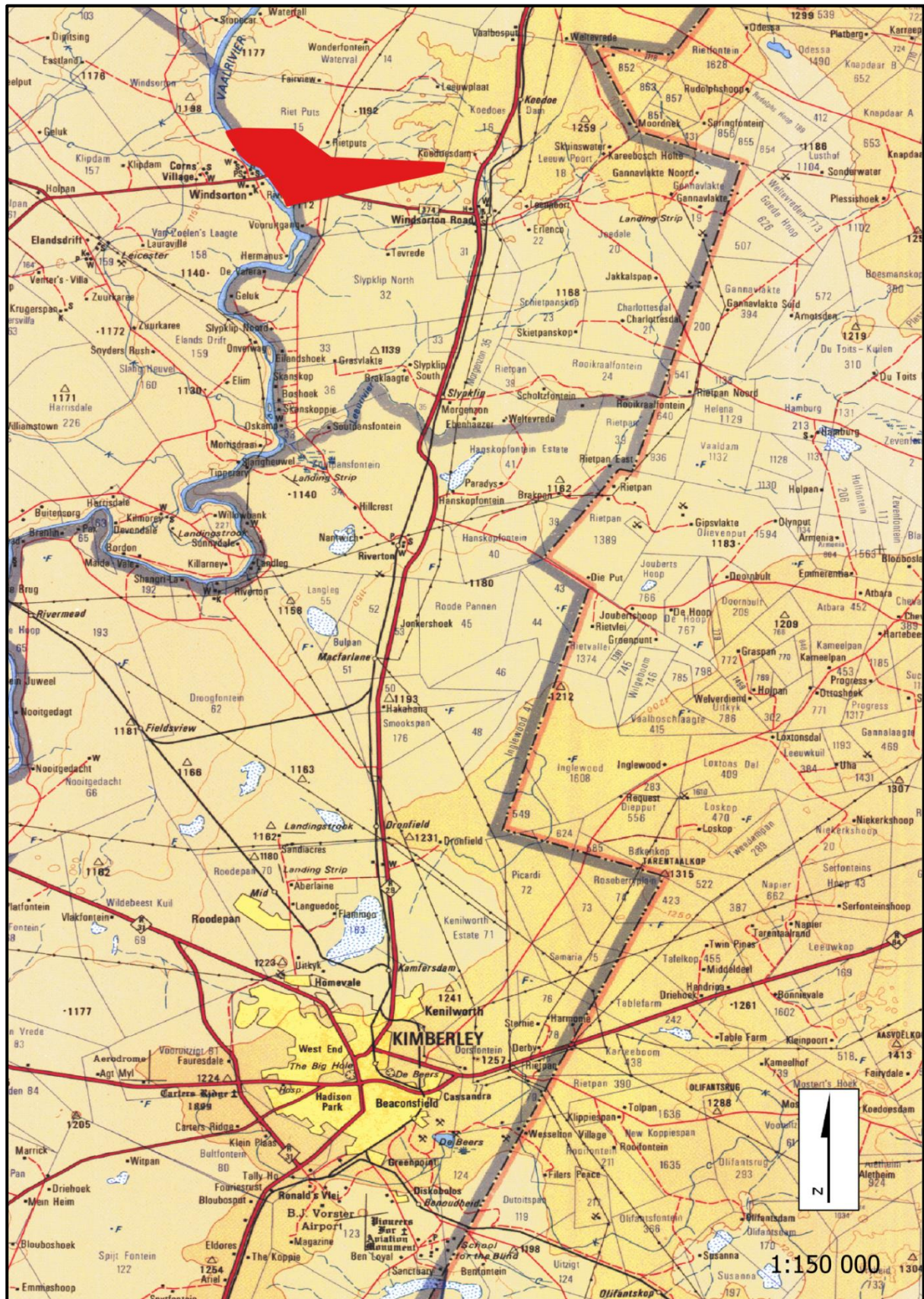
### b) Description of the property.

<b>Farm Name:</b>	<b>Farm No.:</b> 15	
	<b>Portions:</b> Re of Po 3, Po 4, Re of Po 5, Po 9	
	<b>Farm Name:</b> Riet Puts	
	<b>Magisterial District:</b> Kimberley	
	<b>Province:</b> Northern Cape	
	<b>Title Deed No's.:</b> T82/2013 (Wedberg CPA)	
	Including a portion of Stateland.	
<b>Application area:</b>	± 1 669 ha	
<b>Magisterial district:</b>	Kimberley	
<b>Distance and direction from nearest town:</b>	The prospecting right area is located within the Kimberley District Municipality of the Northern Cape Province and lies approximately 55 km north of Kimberley and 6 km east of Windsorton on the R374. The site is accessed via gravel roads that turn off from the R374.	
<b>21 digit Surveyor General Code for each farm portion:</b>	Remainder of Portion 3	C03700000000001500003
	Portion 4	C03700000000001500004
	Remainder of Portion 5	C03700000000001500005
	Portion 9	C03700000000001500009



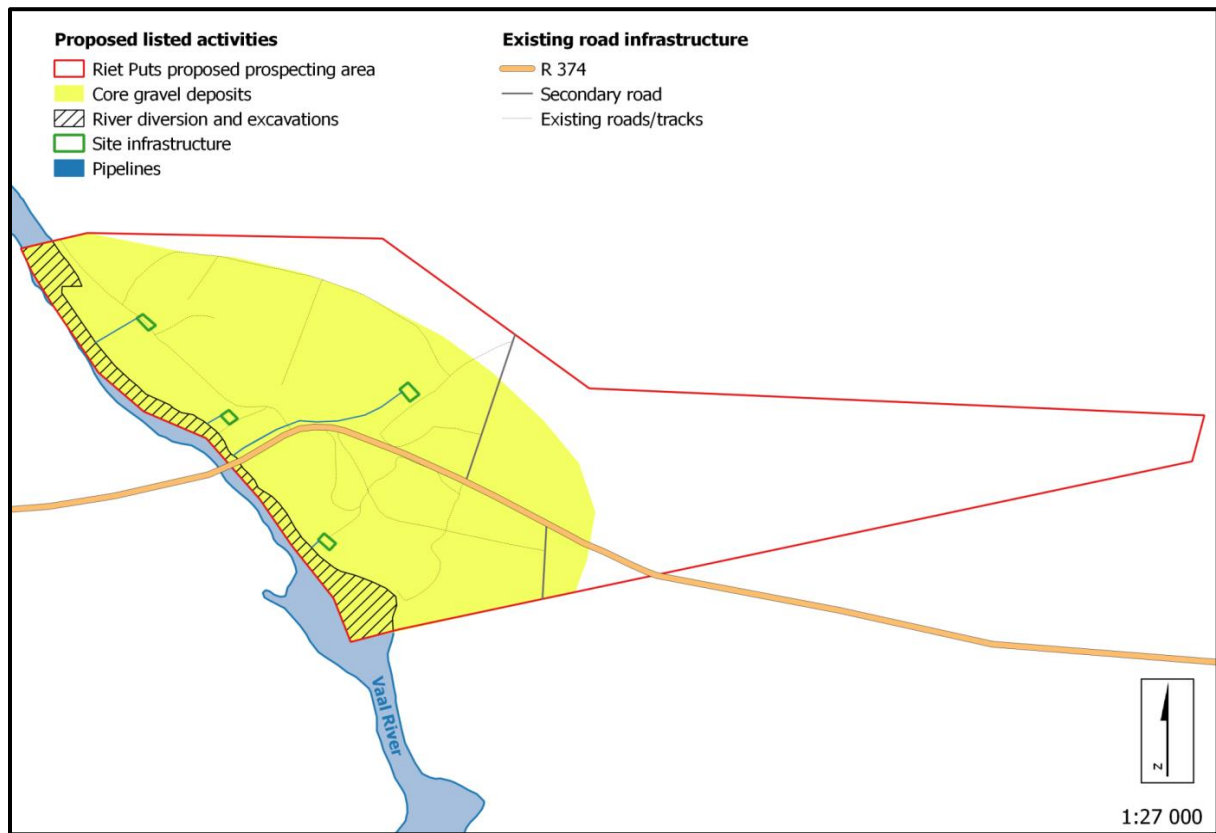
## Scoping Report – Wedberg CPA

### c) Locality map





### d) Description of the scope of the proposed overall activity.



LISTED ACTIVITIES ON ABOVE MAP DESCRIBED	
MAP LEGEND	ASSOCIATED ACTIVITIES
<b>Riet Puts proposed prospecting area</b>	<ul style="list-style-type: none"> <li>The operation directly relates to prospecting of a mineral resource (diamonds, sand, clay) and requires a prospecting right.</li> <li>The operation directly relates to prospecting of a mineral resource (diamonds, sand, clay) and requires permission in terms of Section 20 (MPRDA), for the removal and disposal of bulk samples of any minerals.</li> </ul>
<b>Core gravel deposits</b>	<ul style="list-style-type: none"> <li>The clearance of an area of more than 20 ha of indigenous vegetation.</li> <li>The development of haul roads 18 m wide with no reserve.</li> <li>The continuous lengthening (and rehabilitation) of haul roads 18 m wide with no reserve.</li> <li>The development of access roads 6 m in width with no reserve.</li> <li>The continuous establishment and reclamation of temporary stockpiles resulting from activities which require a prospecting right.</li> </ul>
<b>River diversion and excavations</b>	<ul style="list-style-type: none"> <li>The development of a temporary berm wall (diversion) within the Vaal River.</li> <li>The excavation of soil, sand, shells, shell grit, pebbles or rock from the Vaal River.</li> </ul>
<b>Site infrastructure</b>	<ul style="list-style-type: none"> <li>The operation directly relates to activities associated with the primary processing of a mineral resource.</li> <li>The development of infrastructure for the storage and handling of dangerous goods (fuel), in containers with a combined capacity of 60 m<sup>3</sup>.</li> <li>The establishment of slimes dams resulting from activities which require a prospecting right.</li> <li>Pipelines for the bulk transportation of slimes.</li> <li>Pipelines for the bulk transportation of return water.</li> <li>General site infrastructure, including office complexes, workshop facilities, storage facilities, concrete bund walls and diesel depots, ablution facilities and plastic water storage tanks.</li> </ul>
<b>Pipelines</b>	<ul style="list-style-type: none"> <li>Pipelines for the bulk transportation of water.</li> </ul>

### i) Listed and specified activities

ACTIVITIES TO BE AUTHORISED				
NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE	WASTE MANAGEMENT AUTHORISATION
<b>Listed Activities:</b>				
<b>Activity 12(v)(a):</b> The development of a temporary berm wall (diversion) exceeding 100 m <sup>2</sup> in size within the Vaal River.	To be confirmed by specialist	<b>X</b>	NEMA: LN1 (GNR983)	
<b>Activity 19:</b> The excavation of soil, sand, shells, shell grit, pebbles or rock of more than 5 m <sup>3</sup> from the Vaal River.	< 90 ha	<b>X</b>	NEMA: LN1 (GNR983)	
<b>Activity 20:</b> The Riet Puts operation directly relates to prospecting of a mineral resource (diamonds, sand, clay) and requires a prospecting right.	± 1 669 ha	<b>X</b>	NEMA: LN1 (GNR983)	
<b>Activity 24(iii):</b> The development of haul roads 18 m wide with no reserve.	± 21 000 m <sup>2</sup>	<b>X</b>	NEMA: LN1 (GNR983)	
<b>Activity 56(ii):</b> The continuous lengthening (and rehabilitation) of haul roads 18 m wide with no reserve.	± 21 000 m <sup>2</sup>	<b>X</b>	NEMA: LN1 (GNR983)	
<b>Activity 15:</b> The clearance of an area of more than 20 ha of indigenous vegetation.	± 1 000 ha	<b>X</b>	NEMA: LN2 (GNR 984)	



## Scoping Report – Wedberg CPA

ACTIVITIES TO BE AUTHORISED (cont.)				
NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE	WASTE MANAGEMENT AUTHORISATION
<b>Activity 19:</b> The Riet Puts operation directly relates to prospecting of a mineral resource (diamonds, sand, clay) and requires permission in terms of Section 20 (MPRDA), for the removal and disposal of bulk samples of any minerals.	± 1 669 ha	X	NEMA: LN2 (GNR 984)	
<b>Activity 21:</b> The Riet Puts operation directly relates to activities associated with the primary processing of a mineral resource.	± 1 400 m <sup>2</sup>	X	NEMA: LN2 (GNR 984)	
<b>Activity 4:</b> The development of access roads 6 m in width with no reserve.	± 8 000 m <sup>2</sup>	X	NEMA: LN3 (GNR985)	
<b>Activity 10:</b> The development of infrastructure for the storage and handling of dangerous goods (fuel), in containers with a combined capacity of 60 m <sup>3</sup> .	± 85 m <sup>2</sup>	X	NEMA: LN3 (GNR985)	
<b>Activity 15:</b> The continuous establishment and reclamation of temporary stockpiles resulting from activities which require a prospecting right.	± 6 000 m <sup>2</sup>	X	NEMWA: Category A (GNR 633)	X
<b>Activity 15:</b> The establishment of residue deposits (slimes dams) resulting from activities which require a prospecting right.	To be confirmed by specialist	X	NEMWA: Category A (GNR 633)	X

## Scoping Report – Wedberg CPA

ACTIVITIES TO BE AUTHORISED (cont.)				
NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE	WASTE MANAGEMENT AUTHORISATION
Linear Activities (associated infrastructures not considered to be listed activities):				
Pipelines for the bulk transportation of water with a diameter of 0.11 m and a peak throughput of 29.1 L /s.	2 400 m			
Pipelines for the bulk transportation of slimes with a diameter of 0.11 m and a peak throughput of 29.1 L/s.	400 m			
Pipelines for the bulk transportation of return water with a diameter of 0.11 m and a peak throughput of 29.1 L/s.	800 m			
Other activities (associated infrastructure not considered to be listed activities):				
Office complexes	± 800 m <sup>2</sup>			
Workshop facilities	± 1 000 m <sup>2</sup>			
Storage facilities	± 10 000 m <sup>2</sup>			
Concrete bund walls and diesel depots	± 900 m <sup>2</sup>			
Ablution facilities	± 100 m <sup>2</sup>			
Plastic water storage tanks	± 20 m <sup>2</sup>			

### ii) Description of the activities to be undertaken

#### Prospecting

The prospecting operation is based on diamondiferous alluvial gravels which will be extracted by means of opencast pitting and trenching methodology using heavy earthmoving machinery. Overburden is stripped where required and the underlying gravels are excavated in the form of shallow open pits, by means of hydraulic shovels and excavators.

The prospecting right area is currently utilised by three contractors and therefore three different prospecting sites have been established (from here on referred to as the “sites”). These sites each involve their respective operational activities. The addition of one more (fourth) contractor is envisaged. It is foreseen that the operation will remove a volume of approximately 600 000 m<sup>3</sup> during bulk sampling.



An excavated pit, indicating diamondiferous gravels

#### River diversions and disturbances of water courses

River diversions are planned in order to access gravels that occur in the beds of the Vaal River. The beds and banks of the Vaal River will be subject to pitting and trenching. The methodology for the river diversions will be assessed during a technical assessment by engineering consultants. The results of the assessment will be included in the EIA report, while the suggested control measures will be provided in the EMP report.

### Mineral processing

Excavated gravels are screened at the central screening facilities located at each site. Here, oversized material ( $> 150$  mm) is separated, loaded onto dump trucks and returned to the pit for backfilling. The screened gravel is then fed to 16 ft rotating pans, where after the diamondiferous concentrate is loaded into bins and transported off-site for final recovery. Each site currently runs one 16 ft pan; i.e. three pans in total for the prospecting area, but they each aim to add one more pan; i.e. six pans in total for the prospecting area. Another two pans is envisaged to be added when a fourth contractor becomes operational.



Excavated material is screened (top)  
Thereafter  $< 150$  mm material is fed into 16 ft rotary pans (bottom)



### Plant residue disposal

Residue from the pan plants are processed through de-watering screens where the sand is removed for beneficiation at some sites. The remaining slimes are then pumped into slimes dams. Each site has one slimes dam, i.e. three slimes dam in total for the prospecting area, with the potential of a fourth dam being added when an additional contractor becomes operational.

Technical assessments by engineering consultants will be conducted in order to provide additional specifications and information pertaining to the slimes dams. The results of these assessments will be included in the EIA report.



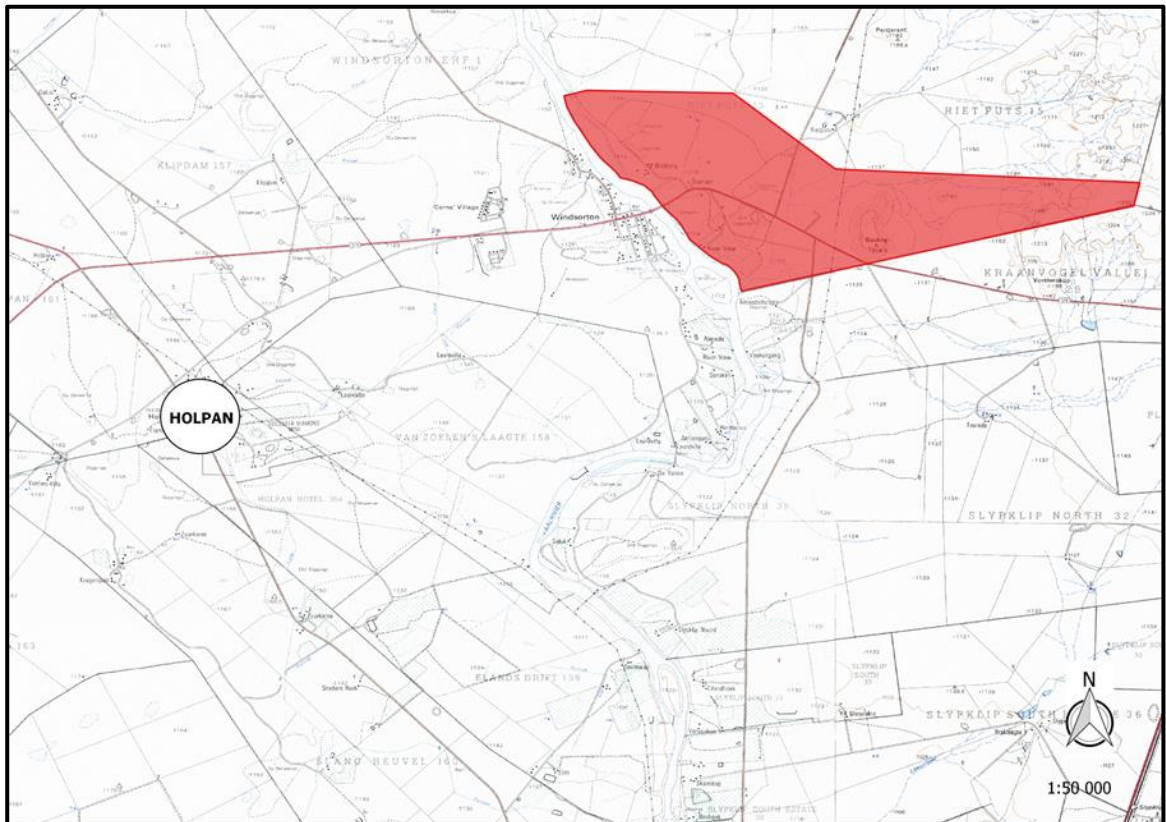
**The three slimes dams currently found in the prospecting right area;  
Site 1, Site 2 and Site 3 respectively, from top to bottom.**



### Material transport

Dump trucks are used to transport raw material from the excavations to the processing plants and to return waste rock to the excavations for backfilling. Access is gained by low angle ramps to open pits and trenches, and by haul roads to the processing areas.

Transporting trucks carry concentrate bins off-site to the final recovery situated on Holpan, approximately 17 km south-west of the prospecting area. This transportation route entails utilising an estimated 12 km stretch of the public R374 road. The transportation route will be scrutinised and results will be included in the EIA report.



The diamondiferous concentrate is transported from the prospecting area (in red) to Holpan in the south-west.

### Rehabilitation

In general, the prospecting method involves a continuous backfilling open cast pitting and trenching process. Topsoil will be stripped and hauled to already backfilled areas. If there are no backfilled areas available immediately, topsoil 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. Rehabilitation will be discussed in more detail in the EIA report and a rehabilitation plan will be provided EMP report.

The rehabilitation methodology for the river diversions will be assessed during a technical assessment by engineering consultants. The results of the assessment will be included in the EIA report, while the suggested rehabilitation methods will be provided in the EMP report.

### Waste management facilities

All domestic waste is stored in garbage bins at the different sites and then transported regularly to the registered waste disposal facility in Windsorton.

The sites are fitted with flush toilets that either drain into a septic tank or a French drain. The toilets are serviced regularly.

Industrial waste disposal facilities are located on the sites. Designated concrete wash bays are used to clean vehicles, while fenced scrapyards have been erected to contain scrap material. Temporary workshop and storage facilities are used for general repair and maintenance and to store tools and hazardous substances, e.g. oil and grease.

One diesel tank is situated at each site. These tanks vary in capacity, but an estimated total combined capacity of 60 m<sup>3</sup> is provided for diesel storage on the prospecting area. All fuel storage tanks are contained within a retaining wall in order to contain diesel spillage.

No permanent waste rock dumps are being created as waste rock is continuously being used as backfill material for the trenches that have already been excavated.



Examples of a fuel storage facility and basic wash bay (top), a designated scrap yard (middle) and a temporary workshop and storage facility (bottom) that have been established on site.



### Water use and management

Drinking water is obtained from Windsorton and is brought onto the site in containers by the respective contractors.

Process water is directly obtained from the Vaal River. Water is pumped and transported via a number of pipelines to the different sites. It is expected that not more than 35 000 litres will be used daily from the Vaal River. A WULA for Section 21 (a), (c) & (i) and (g) is currently being compiled. Some water is stored in tanks, but no water use licence is required in terms of Section 21 (b).

No pollution control dams have been established at Riet Puts, because the processing and treatment are a chemical free process. There are no facilities for the treatment of polluted water, other than the slimes dams, which act as settling dams.

A detailed water balance will be included in the EIA report.

### Housing, recreation and other employee facilities

No temporary or permanent staff housing facilities or recreational facilities have been erected on any of the sites. All workers live off-site. Security guards patrol the sites on a rotational shift basis, but do not reside on site. A kitchen is present on one of the sites, containing a gas stove, where food is prepared for staff of this site. Other sites do not have kitchen facilities and food is brought on site.

### Staff transport

Transportation is provided for the staff from their homes to the mining sites and back. Each site contractor is responsible for transportation of their staff members, who access the prospecting area mainly with private light vehicles.

### Site access

Access to Riet Puts is gained via a security gate. The property is easily accessed via a network of regional tarred roads and gravel roads on the prospecting property. The prospecting site is located in the vicinity of the following main roads:

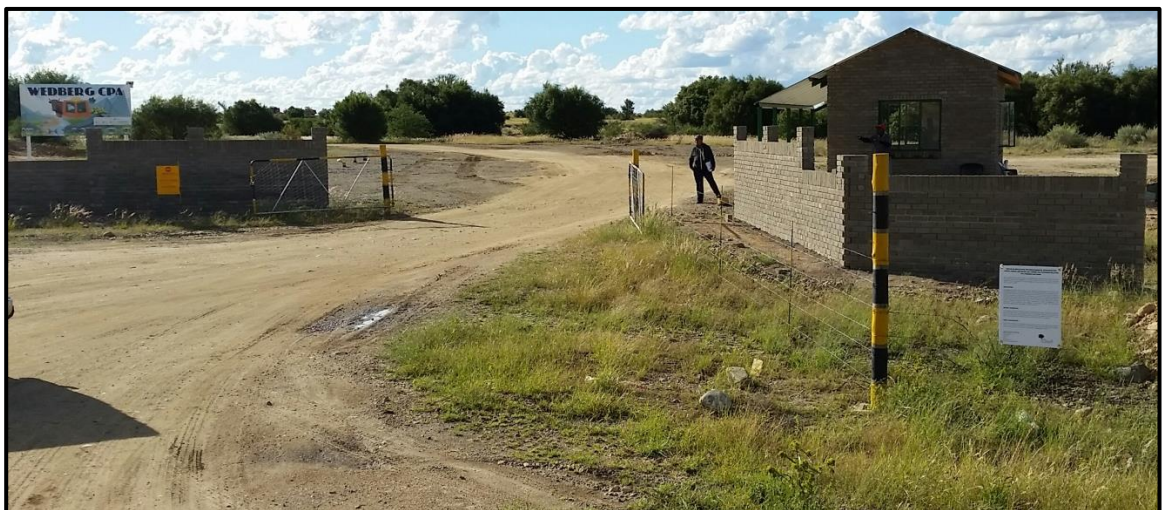
**Road N12:** This national road traverses in a north-south direction in the vicinity of the site. The road links the towns of Kimberley in the south with Warrenton in the north.

**Road R374:** This road is used to access the site. It is a provincial road that traverses in an east-west direction in the vicinity of the site. The road links the N12 in the east with Windsorton in the west, before it traverses southwards; to link Windsorton in the north-east with Barkly West in the south-west.

Activities associated with the Riet Puts prospecting operation that is expected to make use of these roads include:

- the transportation of personnel to and from the site;
- delivery of supplies and materials;
- the transportation of the diamondiferous ore concentrate;
- the transportation of the rough and uncut diamonds for further beneficiation.

These transport operations will make use of passenger vehicles, light delivery vehicles, transportation trucks and security/armoured vehicles.



Riet Puts is accessed via a security gate that is located on a gravel road that turns off from the R374.



### Associated infrastructure

The prospecting operation makes use of existing access roads to gain access to the prospecting right area, while smaller temporary roads have been constructed to gain access to trenches. There are no railway lines on the property, but Eskom power lines are present. Currently, the prospecting operations make use of generators as the main source of power supply, but an application for electricity has been lodged with Eskom; approval pending.

### Machinery

Machinery that will most likely be used during the operation includes the following:

- Hydraulic excavators
- Articulated dump trucks
- Front End Loaders
- Bulldozers
- Graders
- Transportation trucks
- Water truck

### e) Policy and Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED
<p>The Constitution of South Africa (Act No. 108 of 1996) and the Bill of Rights states that everyone has a right to a non-threatening environment and requires that reasonable measures are applied to protect the environment. This protection encompasses preventing pollution and promoting conservation and environmentally sustainable development.</p>	<p>This document as a whole was designed in such a way that it complements the Bill of Rights.</p>
<p>Section 4(a) of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) state that sustainable development requires the consideration of all relevant factors including the following:</p> <ul style="list-style-type: none"> <li>(i) Disturbance of ecosystems and loss of biological diversity are avoided, or where they cannot be altogether avoided, are minimised and remedied;</li> <li>(ii) Pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;</li> <li>(iii) Disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided or where it cannot be altogether avoided, is minimised and remedied;</li> <li>(iv) Waste is avoided or where it cannot be altogether avoided, minimised and reused or recycled where possible and otherwise disposed of in a responsible manner;</li> <li>(v) Use and exploitation of non-renewable natural resources is responsible, equitable and considers the consequences of the depletion of the resource; and</li> <li>(vi) Development, use and exploitation of renewable resources and the ecosystems, of which they are part, do not exceed the level or 'critical limits' beyond which their integrity is jeopardised.</li> </ul>	<p>This is considered in section h) of this scoping report, but will also be included in the Environmental Management Programme Report.</p>
<p>According to the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) (MPRDA) prospecting operations can only commence once the applicant has received authorisation from the Department of Minerals Resources (DMR) in terms of their Prospecting Right application.</p>	<p>The title page makes reference to the approved Prospecting Right.</p>
<p>According to the MPRDA (Act 49 of 2008) Environmental Authorisation is required before prospecting activities can commence.</p>	<p>This document was designed to serve that purpose.</p>
<p>Section 38(1) (a) of the MPRDA requires that effect be given to the general objectives of integrated environmental management laid down in the NEMA. Integrated environmental management (IEM) is a philosophy, which prescribes a code of practice for ensuring that environmental considerations are fully integrated into all stages of the development process in order to achieve a desirable balance between conservation and development.</p>	<p>This is considered in section h) of this scoping report, but will also be included in the Environmental Management Programme Report.</p>

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED
<p>The required determination of a quantum of the financial provision as referred to in regulation 54 of the MPRDA, does not detract from the need for the EMP to identify all the environmental costs necessary to evaluate the achievement of the sustainable development objectives of the MPRDA. The EMP is, therefore, not merely a rehabilitation plan that identifies a quantum for financial provision, but rather a comprehensive programme that identifies all the costs necessary to inform the evaluation of the planning and implementation of a prospecting project.</p>	<p>This will be included in the Environmental Impact Assessment Report and the Environmental Management Programme Report.</p>
<p>Chapter 5 of NEMA (as amended), contain the EIA Regulations, as well as a schedule of activities that may have substantial detrimental effects on the environment and therefore require authorisation from the competent environmental authority.</p>	<p>This document was designed to serve that purpose. Listed activities are presented in Section d.</p>
<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> <p>Chapter 2 lists all protected areas.</p>	<p>A specialist ecological assessment will be performed by Dr Betsie Milne from Boscia Ecological Consulting in order to identify any protected and/or threatened ecosystems.</p> <p>Results of the assessment will be presented in the EIA report.</p>
<p>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.</p> <p>Section 53 states that the Minister may identify any process or activity in such a listed ecosystem as a threatening process.</p> <p>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.</p>	<p>A specialist ecological assessment will be performed by Dr Betsie Milne in order to identify any protected and/or threatened ecosystems and/or nationally protected plant species that occur on the proposed prospecting right area.</p> <p>Results of the assessment will be presented in the EIA report and control measures will be contained in the EMP report.</p>
<p>According to Section 22(1) of Chapter 5 of NEMBA the following activities are also prescribed as restricted activities -</p> <p>(a) Allowing any specimen of an alien or listed invasive species to grow, breed or multiply;</p> <p>(b) Allowing the movement or spread of a specimen of an alien or listed invasive species;</p> <p>(c) Releasing a specimen of an alien or listed invasive species.</p>	<p>The specialist ecological assessment will also identify any alien or listed invasive species that occur in the prospecting right area.</p> <p>Results of the assessment will be presented in the EIA report and control measures will be contained in the EMP report.</p>

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED
<p>In terms of the terms of Section 1 of the National Water Act, (Act No. 36 of 1998), a “water resource” includes a watercourse, surface water, estuary, or aquifer.</p> <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>(d) engaging in a stream flow reduction activity (such as in section 36);</li> <li>(e) engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1);</li> <li>(f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;</li> <li>(g) disposing of waste in a manner which may detrimentally impact on a water resource;</li> <li>(h) disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process;</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> <li>(k) using water for recreational purposes.</li> </ul>	<p>A specialist wetland assessment and surface water study will evaluate the state of water sources in the prospecting right area, while technical specialists will compile designs for the planned diversion and slimes dams.</p> <p>Results of the assessments will be presented in the EIA report and control measures will be contained in the EMP report.</p> <p>A WULA will be lodged with the DWS.</p>
<p>The World Heritage Convention Act (Act 49 of 1999) Recognises that the cultural heritage and the natural heritage are among the priceless and irreplaceable possessions, not only of the Republic, but of humankind as a whole. It also acknowledges that the loss, through deterioration, disappearance or damage through inappropriate development of any of these most prized possessions, constitutes an impoverishment of the heritage of all the peoples of the world and, in particular, the people of South Africa.</p>	<p>A Heritage Impact Assessment will be performed by Dr Lloyd Rossouw from Paleo Field Services in order to identify any features of cultural significance.</p> <p>Results of the assessment will be presented in the EIA report and control measures will be contained in the EMP report.</p>
<p>The National Heritage Resources Act (Act No. 25 of 1999) legislates the necessity for cultural and heritage impact assessment in areas earmarked for development, which exceed 0.5 ha or linear development exceeding 300 m in length. The Act makes provision for the potential destruction to existing sites, pending the archaeologist’s recommendations through permitting procedures. Permits are administered by the South African Heritage Resources Agency (SAHRA).</p>	<p>The Heritage Impact Assessment will identify any features of cultural significance.</p> <p>Results of the assessment will be presented in the EIA report and control measures will be contained in the EMP report.</p>

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED
<p>Section 7 of the National Forests Act (No. 84 of 1998) state that no person may cut, disturb, damage or destroy any indigenous, living tree in a natural forest, except in terms of a licence issued under Section 7(4) or Section 23; or an exemption from the provisions of this subsection published by the Minister in the Gazette.</p> <p>Section 15 prevents any person to 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.</p>	<p>The specialist ecological assessment will identify all protected tree species that occur on the proposed prospecting right area.</p> <p>Results of the assessment will be presented in the EIA report and control measures will be contained in the EMP report.</p>
<p>The Northern Cape Nature Conservation Act (Act No. 9 of 2009) aims to provide for the sustainable utilisation of wild animals, aquatic biota and plants.</p> <p>Section 3(a) and 4(a) states that no person may, without a permit by any means hunt, kill, poison, capture, disturb, or injure any protected or specially protected animals.</p> <p>Section 12 (1) states that no person may, on a land of which he or she is not the owner, hunt a wild animal without the written permission from the landowner.</p> <p>Section 49 (1) and 50 (1) states that no person may, without a permit pick, transport, possess, or trade in a specimen of a specially protected (Schedule 1) or protected (Schedule 2) plants.</p> <p>Section 51(2) states that no person may, without a permit, pick an indigenous plant (Schedule 3) in such manner that it constitutes large-scale harvesting.</p>	<p>The specialist ecological assessment will identify all provincially protected plant and fauna species that occur on the prospecting right area.</p> <p>Results of the assessment will be presented in the EIA report and control measures will be contained in the EMP report.</p>
<p>The Conservation of Agricultural Resources Act (Act No. 43 of 1983) makes provision for the conservation of agricultural land.</p> <p>Section 5 prohibits the spreading of weeds, while Section 6 and Regulation 15 and 15 E of GNR 1048 addresses the implementation of control measures for alien and invasive plant species.</p> <p>Bush encroacher species are controlled in terms of Regulation 16; where land users of an area in which natural vegetation occurs and that contains communities of encroacher indicator plants are required to follow sound practices to prevent the deterioration of natural resources and to combat bush encroachment where it occurs.</p>	<p>The specialist ecological assessment will identify alien or listed invasive species and potential encroacher species that occur on the proposed prospecting right area.</p> <p>Results of the assessment will be presented in the EIA report and control measures will be contained in the EMP report.</p>
<p>Section 17 of the Fencing Act (Act No. 31 of 1963) states that any person erecting a boundary fence may clean any bush along the line of the fence up to 1.5 m 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.</p>	<p>Control measures will be contained in the EMP report.</p>

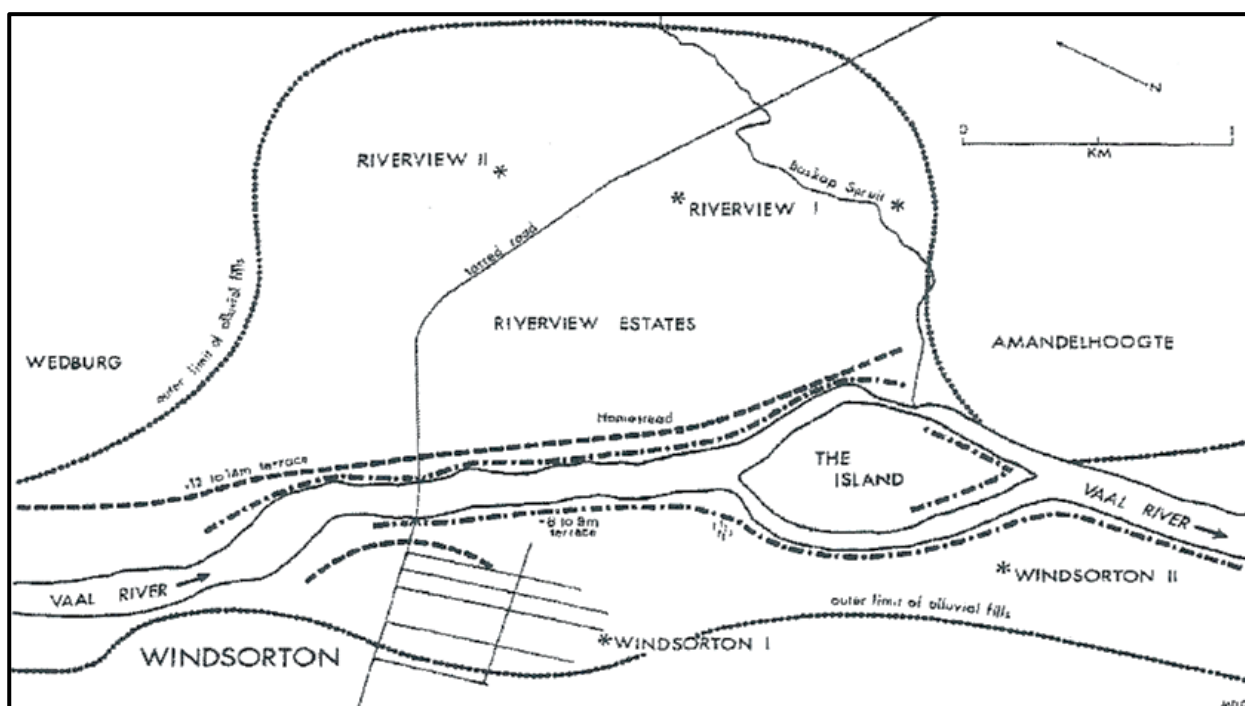


APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED
<p>The National Environmental Management Act: Waste Act (NEMWA), 2008 (Act 59 of 2008) reforms the law regulating waste management in order to protect human health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development.</p>	<p>Listed activities in terms of NEMWA are presented in Section d.</p> <p>Control measures will be contained in the EMP report.</p>
<p>Section 25 of the Environmental Conservation Act (Act 73 of 1989) as well as the National Noise Control Regulation GNR 154 of 10 January 1992, regulate activities regarding noise, vibration and shock.</p>	<p>Control measures will be contained in the EMP report.</p>
<p>Section 8 of the Atmospheric Pollution Prevention Act (Act No. 45 of 1965) regulates controlled areas, and Section 27 regulates activities with regard to dust control.</p>	<p>Control measures will be contained in the EMP report.</p>
<p>The Occupational Health and Safety Act, Act No. 85 of 1993 GNR 2281 of 1987 – 10-16 regulates environmental regulations for the workplace.</p>	<p>Control measures will be contained in the EMP report.</p>
<p>The Explosives Act (26 of 1956) restricts activities regarding possession and handling of explosives.</p>	<p>Section d (ii) promulgates the various planned prospecting activities and associated infrastructure.</p> <p>Control measures are contained in Part B: EMPR.</p>
<p>The Mine Health and Safety Act (29 of 1996) provide for protection of the health and safety of employees and other persons at mines.</p>	<p>Control measures will be contained in the EMP report.</p>
<p>The National Road Traffic Act (93 of 1996) and the National Road Traffic Regulations (2000) regulates general road safety rules.</p>	<p>Control measures will be contained in the EMP report.</p>
<p>The South African Civil Aviation Regulation Act (Act 13 of 2009) controls markings of structures that may influence aviation through the Civil Aviation Technical Standard, SA-CATS-AH 139.01.33 Obstacle Limitations and Markings outside Aerodrome or Helicopters.</p>	<p>The project information is contained in Section d.</p>

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

The activity is based on The Riet Puts Formation occupied the east side of the Vaal River at Windsorton. The classic occurrence of Younger Gravels is at Windsorton, where the Riet Puts Formation and earlier Riverton Formation is part of one  $\pm$  12 to 14 meter floodplain terrace. Although the surface has been reached by historic floods, there is only thin veneer of recent sediments.

A lower, + 8 to 9 m terrace also occur along the sides of the modern channel at Windsorton. This terrace is composed of greyish-brown sandy silts pertaining to member IV of the Riverton Formation. Also present at this level are minor erosion shoulders cut into the higher terrace. Remnants of greyish-brown, sandy silts of member V of the Riverton Formation are found at this level, but construction of coffer dams in the modern river by diggers and mining on the channel fringes has nearly obliterated the 19th century channel morphology.



An indication of diamondiferous gravels near Windsorton

The gravels near Windsorton have been strongly emphasised in earlier reports due to their artefact and diamond content. However, a nearly equal volume of arenaceous sediments is also present. Thick gravel deposits occur east of the Vaal to the north and east of Riverview Estates farm buildings and at the lower level on Wedberg and west of the Vaal below Windsorton's main street.

Thinner gravel fills are found in the Vaal channel and beneath a thick layer of Riverton Formation sediments, both on the southern part of the Windsorton town lands and on the peripheries of the thick gravels on Riverview Estates. A small dolerite sill and a kimberlite fissure also occur on Riverview Estates.

The diamond industry is an international trade and the consumer demand for diamonds has shown positive nominal US Dollar (USD) growth, with annual growth of almost 5 % from 2008 to 2013. South Africa was the fifth biggest producing country, with its production increasing with 15% to a value of USD 1.19 billion. The diamond value or its selling price depends on a number of factors: colour, clarity, stone size and shape. An average value can only be determined from the valuation of a large representative parcel of diamonds recovered from the deposit.

Prospecting with bulk sampling will assist in indicating the grade and quality of diamond resources on Riet Puts. The proposed project has the potential to uplift the previous disadvantage communities (Wedberg) and to redress the results of the past racial and gender discrimination. It is envisaged to have a positive socio economic impact on the local, regional and national economy.

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

The Preferent Prospecting Right was granted in September 2015 and is valid until September 2018. Therefore, environmental authorisation is required for the entire duration, until the right expires.

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

This section converses the determination of the specific site layout having taken into consideration 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.

### i) Details of all alternatives considered

In order to ensure that the proposed activity enables sustainable development, a number of feasible options must be explored. With reference to the site plan provided as **Appendix 3** and the location of the individual activities on Riet Puts, alternatives were considered with respect to the following:

#### The property on which or location where it is proposed to undertake the activity

The property on which the prospecting operations (i.e. excavations) are being undertaken is determined by the geological location of the mineral resource (as discussed in section f). This also applies to the minerals found in the beds of the Vaal River. 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 type of activity, technology and operational aspects

The current prospecting activities, as discussed in section d) ii), include the excavation of open pits and trenches, with continued backfilling. 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 prospecting method for the extraction of alluvial diamonds.

Further alternatives in terms of operational aspects include the slimes dams and the river diversions. These are however dependent on assessments that will be conducted by ECSA registered engineering consultants. The results of these assessments will be used to consider operational alternatives and will be conversed in the EIA report.

#### The design or layout of the activity

The **site infrastructure** has already been established. It was strategically placed by incorporating prospecting project demands and environmental sensitivities identified during the prospecting right application process. Thus, the site layout is primarily based on proximity to the access roads, proximity to the areas earmarked for pitting and trenching as well as limited additional impact on the environmental and heritage resources. This renders the consideration of further alternative layouts unnecessary.

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 viable option for infield screening activities, but the best viable long term option is the instalment of fuel tanks within a concrete bund wall. The final location of the fuel storage tanks were determined based on proximity to site operations.

In terms of **water use** alternatives; the proximity of the operation to the perennial Vaal River renders it the best water source for the operation. Pipelines were considered to be the best long term option for transferring water from the river, due to proximity and the temporary nature of plastic pipes which causes minimum environmental disturbances. Therefore, a pipeline route was designed based on the principle of minimum impacts to the environment and to avoid the disturbance of graves. Alternatives in terms of the layout and design of the river diversions will form part of the technical assessments by engineering consultants. The results of these assessments will be used to consider alternatives and will be conversed in the EIA report.

The **residue deposits** have already been established, with their selected localities being based on the following considerations:

- Historic mining activities and existing infrastructure on the property;
- Proximity to the processing plant;
- No underlying ore bodies.

The slimes dams will nevertheless be assessed by ECSA registered engineering consultants in order to evaluate the capacity and risks of the current slimes dams. Designs will be used to consider alternatives and will be conversed in the EIA report.

### The option of not implementing the activity

The earmarked area was mined in the past, but other potential **land use** includes grazing and maize crops. However, the area is classified to have moderate potential for grazing land and marginal suitability for maize yield. Therefore, mining activities are believed to be the most economically beneficial option for the area. If the prospecting operation does not continue, the farming of livestock can persist and possible irrigation of maize crops.



The most significant impacts associated with these activities include the provision of water and the introduction of chemicals like fertilisers and pesticides. These could have a potentially serious impact on the existing surface water features. Cumulative impacts associated to grazing and crop irrigation include pollution of water resources, overgrazing and destruction of natural vegetation.

The Riet Puts prospecting project aims to **uplift** the previously disadvantaged Wedberg community. If the prospecting operation does not continue, this community will be deprived of economic empowerment. Furthermore, if this operation does not continue it would impact negatively on the employment rate for the region and the families who are likely to benefit from the positive employment opportunities. Simultaneously, it may have a negative 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 lost.

The implementation of the Riet Puts operation will have a potential impact on the **biodiversity** through removal of indigenous vegetation, destruction of habitats and disturbances of water courses. If activities were not to continue, the status quo would apply and no damage would accrue to the environment.

In the event that the prospecting operation does not proceed, the **heritage resources** will remain as is. The protection and preservation of these resources are therefore not guaranteed. However, if the operation continues, the heritage resources will be protected through the demarcation of no-go zones and fencing off of graves.

### ii) Details of the Public Participation Process followed

The initial public participation process was completed during the prospecting right application process. However, a new public participation process was launched as part of the current application for Environmental Authorisation, which was triggered by a section 102 amendment application. The WULA process is also integrated in the current public participation process.

The consultation process as described by NEMA for Environmental Authorisation was followed and is still in process. Please refer to the table in section d) iii) below, which lists the identified Interested and Affected Parties. The holder of the prospecting right (Wedberg CPA) is also the landowner, who received the property after a successful land claim was processed in 2012. All proof of consultation is attached as **Appendix 4**. The following procedures were followed:

- **Notice boards**

A site notice was placed at the entrance gate along the R347 road on 21 April 2016. On the same day, the same notice was also placed at JJ Oppihoek, a local convenient store in Windsorton and at The N12 Outspan Ranch, a local motel which is situated on the corner of the N12 and the R347 roads. With these notices, a legal background and project description were provided and all passers-by were requested to submit any written comments, to request additional information or to register as IAPs by contacting the designated consultant; before 31 May 2016. No response has been received yet.

- **Published notice**

An advert was published in the Diamond Fields Advertiser on 20 April 2016 to notify the general public of the proposed prospecting operation. With this advert, a legal background and project description were provided and all readers were requested to submit any written comments, to request additional information or to register as IAPs by contacting the designated consultant; before 31 May 2016. No response has been received yet.

- **Notice letters to authorities**

All of the relevant authorities located in Kimberley were notified through notice letters that were hand-delivered. Notice letters were also sent with registered post to the local municipalities of Warrenton (Magareng Local Municipality) and Barkly West (Dikgatlong Local Municipality), while a notice letter was emailed to Department of Agriculture, Forestry and Fisheries in Upington. With these letters, a legal background and project description were provided and all known activities requiring authorisation were listed. Authorities were requested to submit any written comments, to request additional information or to register as IAPs by contacting the designated consultant; before 31 May 2016. No response has been received yet.

- **Project registration on SAHRIS**

A heritage case was listed on the SAHRIS database. Through SAHRIS, the South African Heritage Resource Agency is able to provide a heritage management tool to all heritage bodies and custodians of heritage, as well as to local planning authorities and provincial heritage resources authorities. The system enables the efficient and coordinated management of our heritage, and the maximum benefit to heritage resources by appropriate promotion and use of these resources. SAHRIS is the first online government service, worldwide, which allows the public to view and comment on developments in their area on a GIS platform.

A general notice, similar to the notice boards was added to the heritage case profile. With this notice, a legal background and project description were provided and SAHRIS users were requested to submit any written comments, to request additional information or to register as IAPs by contacting the designated consultant; before 31 May 2016. No response has been received yet.

### iii) Summary of issues raised by I&As

A list of all Interested and Affected Parties. X indicates that IAPs were consulted with	Date comments received	Issues raised	Consultant's response to issues as mandated by the applicant	Consultation status	
AFFECTED PARTIES					
Landowner/s					
Not applicable					
Lawful occupier/s of the land					
Not applicable					
Landowners or lawful occupiers on adjacent properties					
Not applicable					
Municipality					
Frances Baard District Municipality 51 Drakensberg Avenue Carters Glen Kimberley Attention: Esmé van Niekerk	X	No comments received yet			
Magareng Local Municipality P O Box 10 Warrenton 8530	X	No comments received yet			
Dikgatlong Local Municipality Private Bag X5 Barkly West 8375	X	No comments received yet			
Organs of State (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA)					
ESKOM: Land Development 4 George Street Kimberley 8301 Attention: Ronaaz Rutter	X	No comments received yet			
Department of Water and Sanitation 28 Central Road Beaconsfield Kimberley Attention: Kutjo Sekwaila Attention: Esther Makungo	X	1 Feb 2016 (Kutjo)	Water use not registered; need to lodge a WULA	Will apply for WULA once all documentation is in place	WULA document preparation In process
Department of Roads and Public Works 9-11 Stokroos Street Squarehill Park Kimberley Crystal Robertson	X	No comments received yet			
Communities					
Not applicable					

## Scoping Report – Wedberg CPA

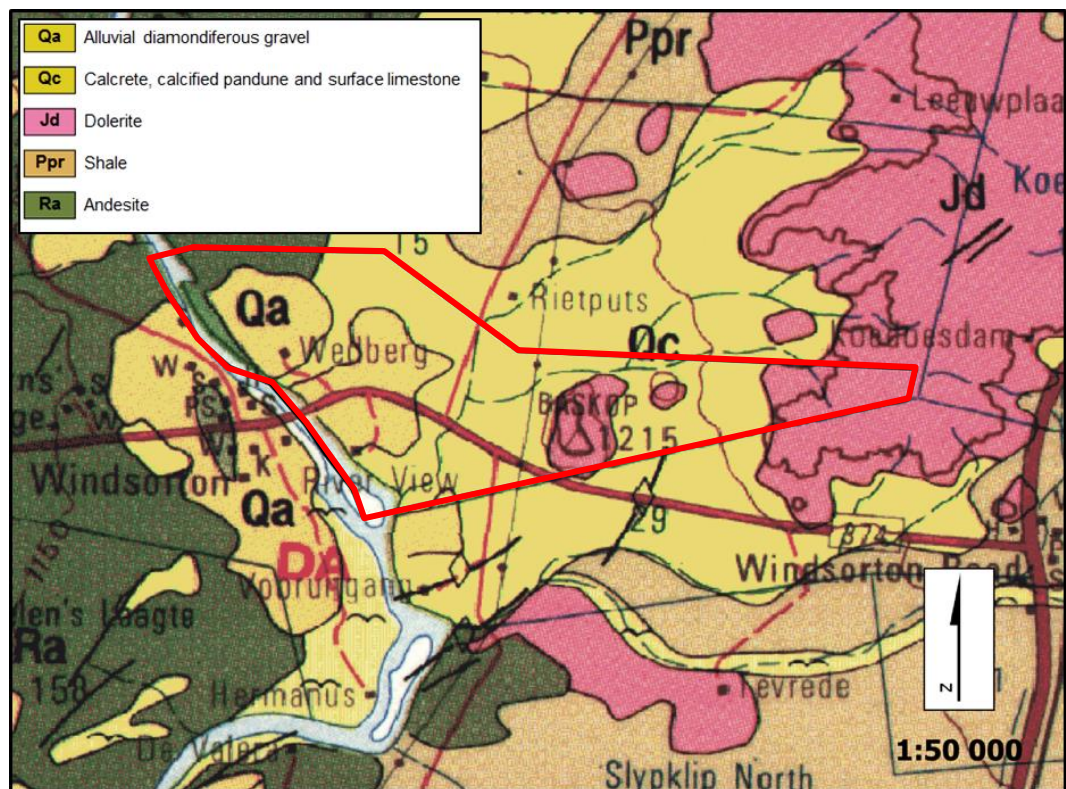
A list of all Interested and Affected Parties. X indicates that IAPs were consulted with	Date comments received	Issues raised	Consultant's response to issues as mandated by the applicant	Consultation status	
AFFECTED PARTIES (cont.)					
Dept. Land Affairs					
Department of Agriculture, Land Reform and Rural Development 162 George Street Kimberlite Building Kimberley Attention: Bernadette Julius	X	No comments received yet			
Traditional Leaders					
Not applicable					
Dept. Environmental Affairs					
Northern Cape Department of Environment and Nature Conservation Sasko Building 90 Long Street Kimberley Attention: Thulani Mthombeni	X	No comments received yet			
Other Competent Authorities affected					
Department of Agriculture, Forestry and Fisheries Attention: Jacoline Mans e-mail: <a href="mailto:JacolineMa@daff.gov.za">JacolineMa@daff.gov.za</a>	X	No comments received yet			
South African Heritage Resource Agency	X	No comments received yet			
Department of Sports, Arts and Culture 22 Abattoir Road Ashburnham Kimberley	X	22 Apr 2016	Concerned about graves on site. Requested a copy of the HIA report	Will forward a copy as soon as the HIA has been completed	Dr Lloyd Rossouw has been appointed to conduct the HIA and plans to do so in the first week of May 2016.
OTHER AFFECTED PARTIES					
None registered yet					
INTERESTED PARTIES					
None registered yet					

### iv) The Environmental attributes associated with the sites (Baseline Environment)

#### (A) Type of environment affected by the proposed activity

##### GEOLOGY

The Riet Puts prospecting right area is interwoven by various geologies. Here, the hills towards the east are associated with a network of dolerite sills, sheets and dykes, mainly intrusive into the Karoo Supergroup. The central parts comprise of calcrete, calcified pandune and surface limestone, while the sections along the river consist of alluvial diamondiferous gravels. A small section in the north-western corner of the study area comprise of andesitic Ventersdorp lava.



An indication of geological features in the study area



The classic occurrence of younger diamondiferous gravels is at Windsorton, where the Riet Puts Formation and earlier Riverton Formation is part of one  $\pm$  12 to 14 meter floodplain terrace. A lower, + 8 to 9 m terrace also occur along the sides of the modern channel at Windsorton. This terrace is composed of greyish-brown sandy silts pertaining to member IV of the Riverton Formation. Also present at this level are minor erosion shoulders cut into the higher terrace. Remnants of greyish-brown, sandy silts of member V of the Riverton Formation are found at this level, but construction of coffer dams in the modern river by diggers and mining on the channel fringes has nearly obliterated the 19th century channel morphology.

Thick gravel deposits occur east of the Vaal to the north and east of Riverview Estates farm buildings and at the lower level on Wedberg and west of the Vaal below Windsorton's main street. Thinner gravel fills are found in the Vaal channel and beneath a thick layer of Riverton Formation sediments, both on the southern part of the Windsorton town lands and on the peripheries of the thick gravels on Riverview Estates.

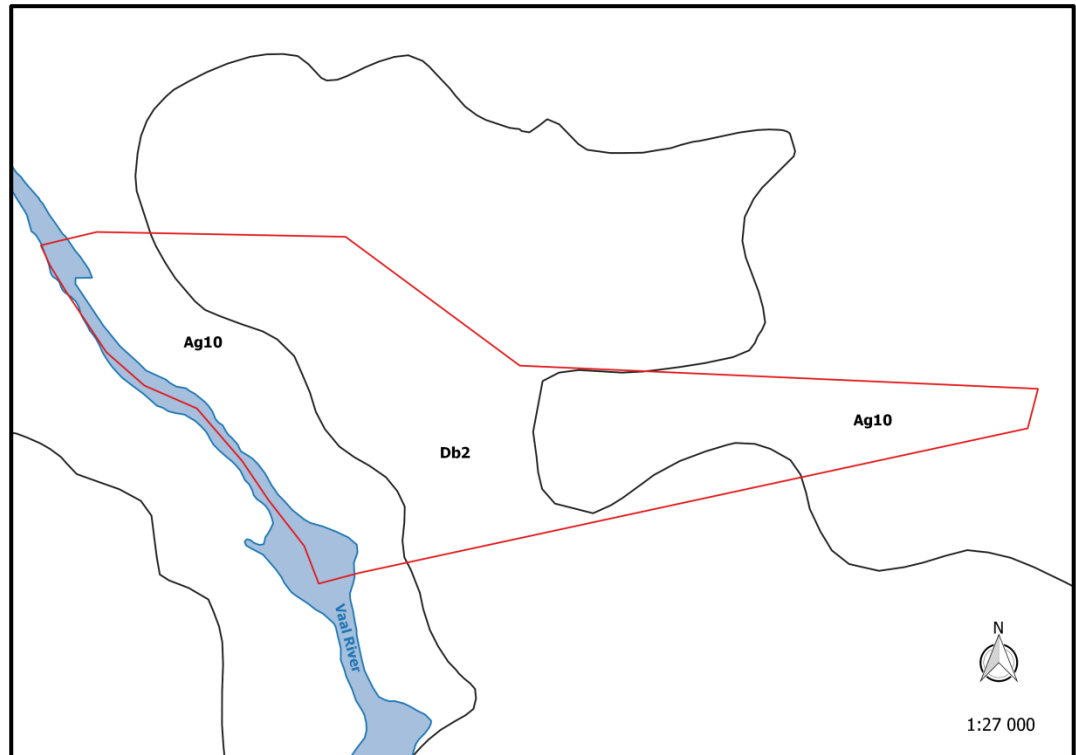
A small dolerite sill and a kimberlite fissure also occur on Riverview Estates. The surface contains reddish brown soil and silty sand. The calcrete, which is moderately cemented, occur in the depth of 1 – 2.5 m.

### TOPOGRAPHY AND SOILS

The area is generally flat, characterised by slightly irregular plains with low relief. The Vaal River cuts through the landscape in the west at 1 109 m above sea level and hills protrude in the east, with a maximum altitude of 1 232 m above sea level. The terrain is indicated by a gentle slope of 8 % from the plains in the east towards the river in the west, while steeper slopes (20 %) are associated with the hills.

In the east and west, the terrain is closely associated with the Ag10 land type. Here, shallow (< 300 mm) red-yellow apedal, freely drained, red soils, with a high base status are found. The central area represents the Db2 land type, where prisma-cutanic and/or pedo-cutanic diagnostic horizons are dominant and the B

horizons are mainly not red. According to the Southern African Agricultural Geo-referenced Information System, the soils associated with the Ag10 land type have a low to moderate erodibility, while those associated with Db2 may have low to high erodibility.



Land types associated with the study area

### CLIMATE

#### Regional Climate

The prospecting right area is located in a semi-arid region, receiving on average about 250 mm of rain in the west to 500 mm on its eastern boundary. The rainfall is largely due to showers and thunderstorms falling in the summer months October to March. The peak of the rainy season is normally March or February. The summers are very hot with cool winters. The nearest weather station to the project area is Kimberley.

### Rainfall

Average monthly and annual rainfall for the site and number of days per month with measureable precipitation is presented in the table below:

MONTH	60 MINUTES	24 HOURS	24 HOURS IN 50 YEARS	24 HOURS IN 100 YEARS
January	35.8	57	65.1	73.8
February	70.1	82	58.9	66.5
March	63.7	67.8	72.1	81.4
April	25.7	51.6	65.9	75.2
May	14.6	54.6	36.8	42.4
June	19.1	67.5	26	30.4
July	12	26.7	26.6	31
August	17	58.2	23.4	27.3
September	16.3	26.7	24.1	28
October	37.6	59.2	53.8	61.8
November	25.2	60.1	41.2	46.7
December	59.9	64.5	70.7	80.9

Source: Directorate: Climatology South African Weather Bureau – Station 0290468:- Kimberley 1970 – 2003

The maximum rainfall intensities are presented in the table below:

MONTH	60 MINUTES	24 HOURS	24 HOURS IN 50 YEARS	24 HOURS IN 100 YEARS
January	35.8	57	65.1	73.8
February	70.1	82	58.9	66.5
March	63.7	67.8	72.1	81.4
April	25.7	51.6	65.9	75.2
May	14.6	54.6	36.8	42.4
June	19.1	67.5	26	30.4
July	12	26.7	26.6	31
August	17	58.2	23.4	27.3
September	16.3	26.7	24.1	28
October	37.6	59.2	53.8	61.8
November	25.2	60.1	41.2	46.7
December	59.9	64.5	70.7	80.9

Source: South Africa (WB42) – Station 0290468:- Kimberley 1961 – 1990

## Scoping Report – Wedberg CPA

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### Temperatures

The average monthly maximum and minimum temperatures are presented in the table below:

MONTH	DAILY MAXIMUM °C	DAILY MINIMUM °C
January	32.8	17.9
February	31	17.3
March	28.8	15.2
April	24.8	10.9
May	21.4	6.5
June	18.2	3.2
July	18.8	2.8
August	21.3	4.9
September	25.5	8.9
October	27.8	11.9
November	30.2	14.6
December	32.1	16.6
<b>Yearly average</b>	<b>26.1</b>	<b>10.9</b>

Source: Directorate: Climatology South African Weather Bureau © 2000 – Station 0290468:- Kimberley 1960 – 2000

### Wind

The prevailing wind direction for the area is north to north-north-west for the months of January to September and changing from north to sometimes westerly winds during October to December averaging 3.5 m/s (Kimberley 01/01/1990 – 31/08/200, Station 0290468).

### Humidity and evaporation

The average monthly humidity is presented in the table below:

MONTH	AVERAGE (%)	MAXIMUM (%)	MINIMUM (%)
January	47	91	8
February	54	94	12
March	57	96	15
April	60	96	16
May	56	96	16
June	54	97	15
July	49	97	13
August	42	94	10
September	36	91	8
October	39	89	8
November	42	92	8
December	43	90	7
<b>Yearly average</b>	<b>48</b>	<b>94</b>	<b>11</b>

Source: Directorate: Climatology South African Weather Bureau © – Station 0290468:- Kimberley 1960 – 2000

The average monthly evaporation is presented in the table below:

MONTH	EVAPORATION IN mm
January	365.6
February	279.1
March	235.8
April	169.1
May	135.1
June	108.6
July	130.1
August	181.2
September	252.6
October	314.8
November	345.5
December	378.6
<b>Yearly average</b>	<b>2896</b>

Source: South African Weather Bureau – Station 0290468:- Kimberley 1957 – 1987

### Incidents of Extreme Weather Conditions

- **Hail**

Hail is sometimes associated with thunderstorms and mainly occurs in early to late summer (November to February). It occurs on average three times a year and although these storms may sometimes be severe and cause much damage, they usually impact on a relatively small area.

- **Frost**

The period during which frost can be expected lasts for about 120 days (May to August). With extreme minimum temperatures to below -8°C at night in the winter, frost development can be severe.

- **Droughts:**

Droughts are common and may vary from mild to severe. During these periods dust storms sometimes occur, depending mainly on denudation of the surface.

- **Wind**

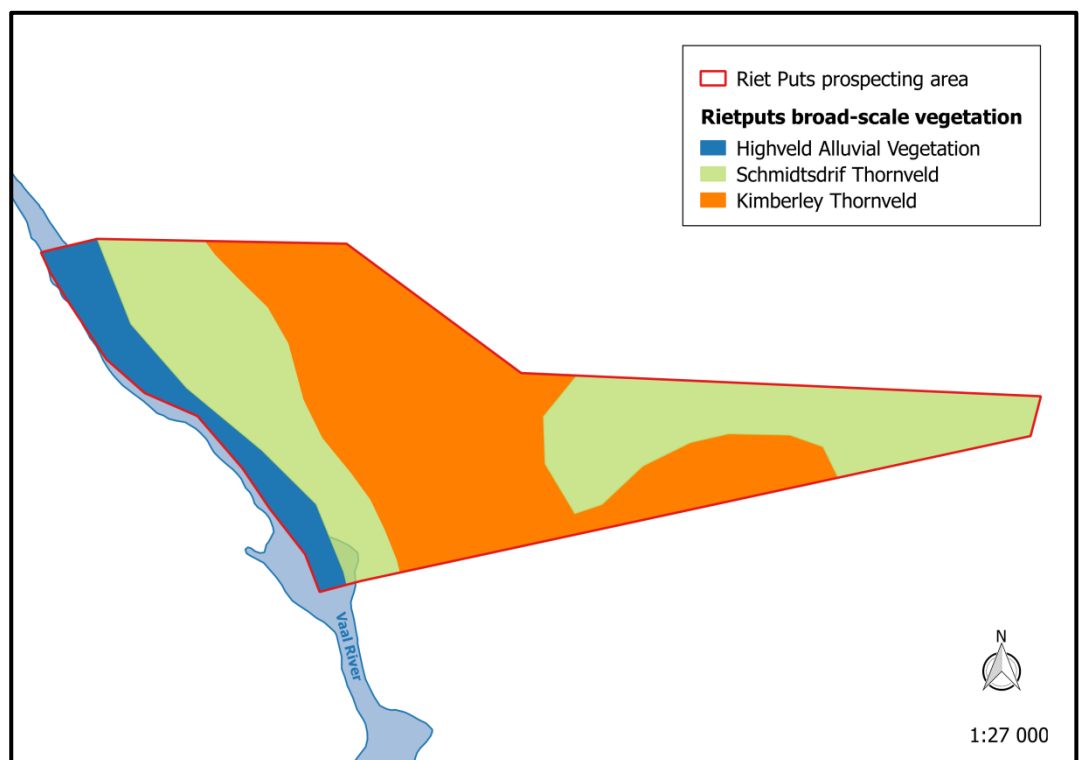
High winds are unusual but when they do occur can uproot trees and take off roofs.



### NATURAL VEGETATION

#### Broad-scale vegetation patterns

The majority of the study area falls within the Savanna Biome, while the Vaal River falls within Inland Azonal Vegetation (Mucina and Rutherford 2006). According to the vegetation map of Mucina et al. (2005) three broad-scale vegetation units are present on site, i.e. Highveld Alluvial Vegetation, Schmidtsdrif Thornveld and Kimberley Thornveld.



**Broad-scale vegetation units found in the Rietputs prospecting area.**

**Highveld Alluvial Vegetation** falls within the Azonal Vegetation Biome and is mainly distributed in the Free State, North-West, Mpumalanga and Gauteng Provinces, but is also found in alluvial drainage lines and floodplains along marginal (eastern) units of the Savanna Biome in Northern Cape. Altitude ranges between 1 000 and 1 500 m.

The unit is typically presented with flat topography supporting riparian thickets, mostly dominated by *Vachellia karroo*. It is accompanied by seasonally flooded grasslands and disturbed herblands often dominated by alien plants. The geology comprise of deep sandy to clayey (but mostly coarse sand) alluvial soils that developed over Quaternary alluvial sediments. Oakleaf, Dundee, Shortlands, Glenrosa and Mispah soil forms were identified in the Vaal River floodplain. Rivers are perennial and often flood in summer. Erosion of the banks and deposition of new fine soil on alluvium can be of considerable extent. Some smaller anastomosing channels of major rivers can dry out in winter. The unit is classified as being least threatened, with 10% being conserved within formal conservation areas, e.g. Bloemhof Dam, Christiana, Baberspan, Wolwespruit, Sandvlei, Schoonspruit, Faan Meintjes and Soetdoring Nature Reserves. More than a quarter has been transformed for cultivation and by building of dams. The unit is highly prone to invasion by alien weeds, while the undergrowth suffers from overgrazing. No endemic species are known from this unit.

**Schmidtsdrif Thornveld** is distributed in the Northern Cape, Free State and North-West Provinces at altitudes between 1 000 and 1 350 m. It stretches from the footslopes and midslopes to the southeast and below the Ghaap Plateau from around Douglas in the southwest via Schmidtsdrif towards Taung in the northeast. A small less typical section is found east of the Ghaap Plateau from Warrenton towards Hertzogville. The unit is typically presented as a closed shrubby thornveld dominated by *Senegalia mellifera* and *Vachellia tortilis*. Apart from grasses, bulbs and annual herbs are also prominent. The vegetation is very disturbed in some areas due to overgrazing by goats and other browsers. Dwyka diamictites and Ecca shales of the Karoo Supergroup are the most significant geological features in this unit, Shale and dolomite of the Schmidtsdrif Subgroup (Griqualand West Supergroup) are also present. Surface limestone occurs sporadically. The soils are well-drained, stony and shallow (< 0.3 m), with large angular rocks found on the surface. A soil-rock complex with Mispah soil form is typical, while the unit is mainly associated with the Ae and Dc land types. The unit is classified as being least threatened, with 13 % being transformed mainly by cultivation. A very small portion (0.2 %) used to be conserved in the de-proclaimed Vaalbos National Park, but it is not currently known to be statutorily conserved. Erosion is very low to low. No endemic species are known from this unit and *Prosopis* spp. are significant alien invaders.

**Kimberley Thornveld** is distributed in the North-West, Free State and Northern Cape Provinces at altitudes between 1 050 and 1 400 m. It is found in the Kimberley, Hartswater, Bloemhof and Hoopstad Districts, but is also within the Warrenton, Christiana, Taung, Boshof and Barkly West Districts. The unit is typically presented as slightly undulating sandy plains with a well-developed tree and shrub layer and an open grass layer. Andesitic lavas of the Allanridge Formation occur in the north and west, while fine-grained sediments of the Karoo Supergroup are found in the south and east. Soils are deep, sandy to loamy, and of the Hutton form. The most common land types are Ae and Ah. The unit is classified as being least threatened, but 18 % has already been transformed, predominantly by cultivation. Only 2 % is currently conserved in statutory reserves and no endemic species are known from this unit. It is specifically prone to *Acacia mellifera* encroachment following overgrazing, but the occurrence and risk of erosion is very low.

### Fine-scale vegetation patterns, conservation status and invasive species

An ecological assessment will be performed by Dr Betsie Milne in May 2016, during which small-scale vegetation patterns and species of conservation concern will be identified. Alien invasive species and bush encroachers will also be identified. The results of this assessment will be provided in the EIA report.

## NATURAL FAUNA

Three broad-scale habitat types are found in the study area and the various landscape features, i.e. plains, hills and riparian zone, provide the potential for a variety of habitats to faunal communities on Riet Puts. The micro-habitats provided by pristine vegetation are also likely to host a variety of small mammals, while the freshwater ecosystem is likely to accommodate a number of aquatic species as well as important bird species. Protected species that are likely to occur in the region are shown in the table below.

SCIENTIFIC NAME	COMMON NAME	STATUS
<b>Mammals</b>		
<i>Eidolon helvum</i>	African Straw-coloured Fruit-bat	Near Threatened
<i>Miniopterus schreibersii</i>	Schreiber's Bent-winged Bat	Near Threatened
<i>Aonyx capensis</i>	African Clawless Otter	Near Threatened
<i>Atelerix frontalis</i>	South African Hedgehog	Near Threatened
<i>Felis nigripes</i>	Black-footed Cat	Vulnerable
<i>Gerbilliscus leucogaster</i>	Bushveld Gerbil	Data deficient taxon
<i>Mellivora capensis</i>	Honey Badger	Near Threatened
<i>Manis temminckii</i>	Ground Pangolin	Vulnerable
<i>Poecilogale albinucha</i>	African Striped Weasel	Data deficient taxon
<b>Amphibians</b>		
<i>Pyxicephalus adspersus</i>	Giant Bullfrog	Near Threatened
<b>Avifauna</b>		
<i>Anthropoides paradisea</i>	Blue Crane	Near Threatened
<i>Aquila rapax</i>	Tawny Eagle	Endangered
<i>Aquila verreauxii</i>	Verreaux's Eagle	Vulnerable
<i>Ardeotis kori</i>	Kori Bustard	Near Threatened
<i>Charadrius pallidus</i>	Chestnut-banded Plover	Near Threatened
<i>Ciconia abdimii</i>	Abdim's Stork	Near Threatened
<i>Circus maurus</i>	Black Harrier	Vulnerable
<i>Circus ranivorus</i>	African Marsh-Harrier	Endangered
<i>Eupodotis caerulescens</i>	Blue Korhaan	Near Threatened
<i>Falco biarmicus</i>	Lanner Falcon	Vulnerable
<i>Glareola nordmanni</i>	Black-winged Pratincole	Near Threatened
<i>Gyps africanus</i>	White-backed Vulture	Endangered
<i>Gyps coprotheres</i>	Cape Vulture	Endangered
<i>Leptoptilos crumeniferus</i>	Marabou Stork	Near Threatened
<i>Limosa limosa</i>	Black-tailed Godwit	Near Threatened
<i>Mycteria ibis</i>	Yellow-billed Stork	Endangered
<i>Numenius arquata</i>	Eurasian Curlew	Near Threatened
<i>Oxyura maccoa</i>	Maccoa Duck	Near Threatened
<i>Phoenicopterus minor</i>	Lesser Flamingo	Near Threatened
<i>Phoenicopterus ruber</i>	Greater Flamingo	Near Threatened
<i>Polemaetus bellicosus</i>	Martial Eagle	Endangered
<i>Rostratula benghalensis</i>	Greater Painted-snipe	Vulnerable
<i>Sagittarius serpentarius</i>	Secretarybird	Vulnerable
<i>Torgos tracheliotus</i>	Lappet-faced Vulture	Endangered

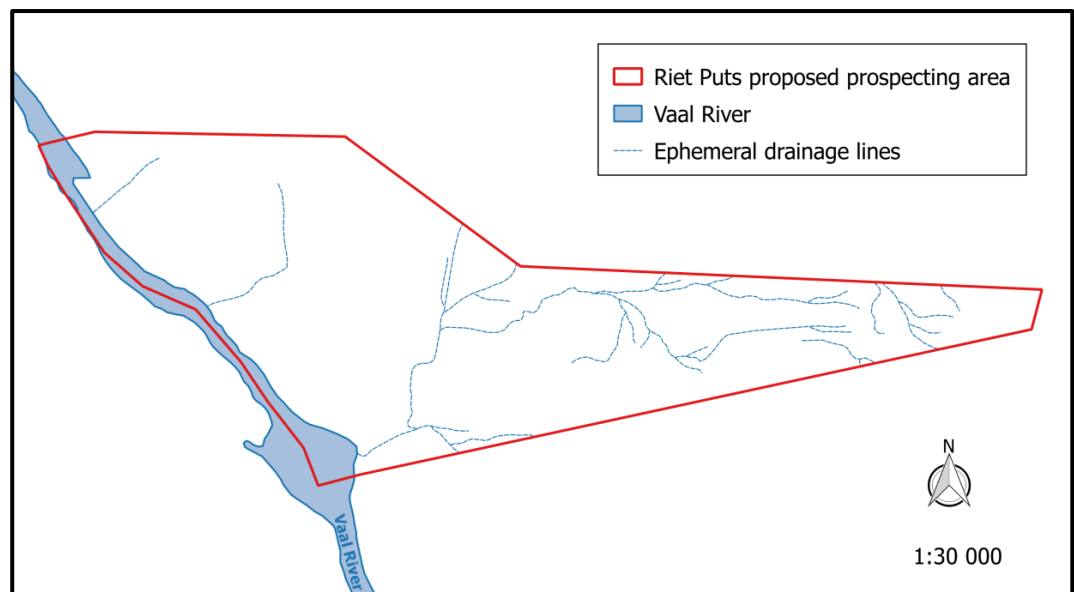
An ecological assessment will be performed by Dr Betsie Milne in May 2016, during which a more accurate account of faunal distribution, habitats and species of conservation concern will be identified. The results of this assessment will be provided in the EIA report.

### SURFACE WATER RESOURCES

The Riet Puts prospecting operation is situated within the Vaal D/S Bloemhof quaternary catchment (C91D) of the Lower Vaal Water Management Area. The quaternary catchment has been allocated a Present Ecological State (PES) of 'largely modified' (D) during the Water Resources Situation Assessment Study that was conducted by DWS in 2002. Information regarding mean annual rainfall, evaporation potential and runoff for the quaternary catchment is provided in the table below.

Mean Annual Rainfall (mm)	Mean Annual Evaporation (mm)	Mean incremental Annual Runoff (million m <sup>3</sup> )
397	2 050	4.22

The identified surface water features on Riet Puts include the Vaal River and numerous ephemeral drainage lines, as seen in the figure below. A surface water resource assessment will be performed by Dr Betsie Milne in May 2016, during which these watercourses and wetlands will be identified, delineated and classified in terms of PES, EIS and functionality. The results of this assessment will be provided in the EIA report.



Identified watercourses on Riet Puts.



### GROUND WATER

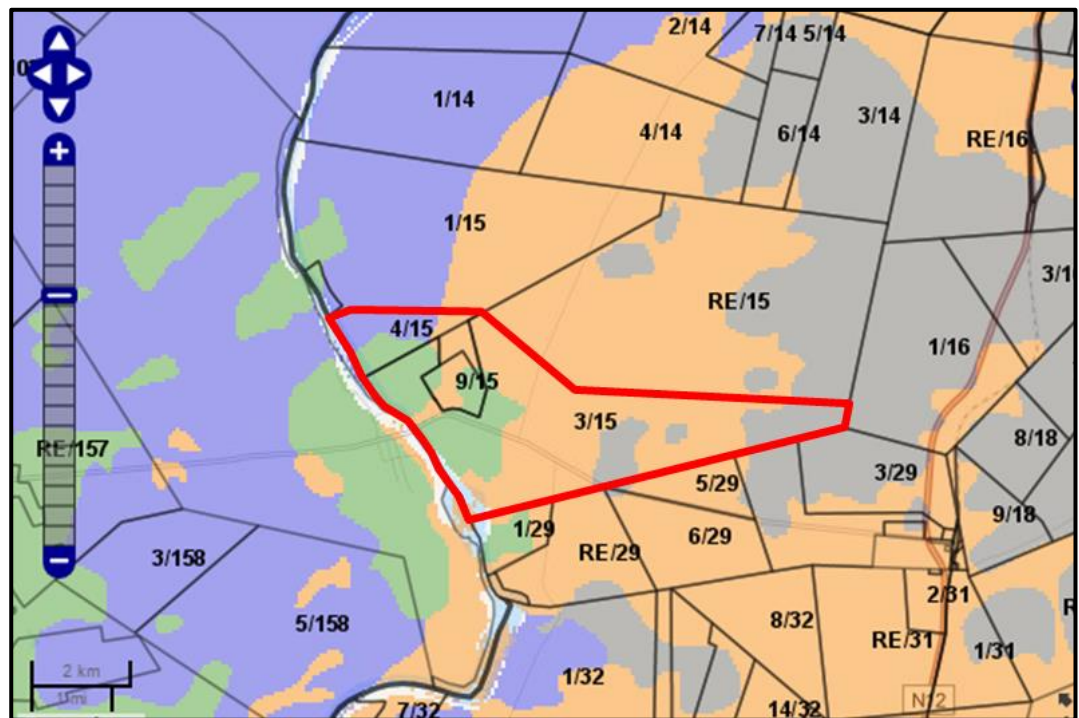
Due to the extremely arid nature of the Lower Vaal WMA, groundwater is the only source of water in some areas, because there are no sustainable surface water resources. However, the study area falls within a minor aquifer region which has a moderately-yielding aquifer system with a net base flow of -23.85 million m<sup>3</sup> per annum and a usable groundwater component from the base flow of 16.69 million m<sup>3</sup> per annum. The Groundwater Resource Directed Measures status for the quaternary catchment C91D is classified as Natural (A). The water has a slightly salty taste, with electrical conductivity ranging between 70 and 150 mS\_m.

A more comprehensive desktop study will be performed and results will be included in the EIA report. Due to the limited potential impact on groundwater resources expected from the Riet Puts operation, it is not foreseen that a groundwater specialist study will be required.

### CULTURAL AND HERITAGE RESOURCES

A graveyard was detected next to one of the scrapyards on Riet Puts, during a site visit. A HIA performed by Dr David Morris in November 2003 identified this graveyard and noted that it was already in a precarious state. His report also stated that an historic building known as the Halliwell's Store was destroyed during past mining activities. He further mentioned the presence of *in situ* Riverton Formation Silts with Later Stone Age material, historic period ceramics and glass, and slumping bone fragments which may well represent one or more Later Stone Age Khoisan burials. He also identified small rock engravings and noted that most of the river bank, island and terraces east of the river have been devastated by previous mining activities, which effectively destroyed one of South Africa's classic Stone Age and palaeoenvironmental sequences. Scattered stone-walled features at the base of a hill were also noted, which most probably represent dwellings of African labourers. His report was however very basic and does not define the extent of his assessment. The report also did not provide any GPS points, which makes it almost impossible to locate some of these significant sites.

According to the regional PaleoMap available from the South African Heritage Resources Information System, the majority of the study area is of high palaeontological sensitivity, especially in the central sections (see map below). The remaining areas are of moderate and low sensitivity.



A palaeontological sensitivity map of the study area, with the LRiet Puts prospecting area indicated in red. Sensitivity is indicated with Orange = HIGH, Green = MODERATE, BLUE = LOW, Grey = INSIGNIFICANT.

A Heritage Impact Assessment will be performed by Dr Lloyd Rossouw in May 2016, during which all potential heritage resources on Riet Puts will be identified and mapped. The results of this assessment will be provided in the EIA report.

### AIR QUALITY

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.

#### Existing Sources

The current source of air pollution in the area stems from mining operations along the Vaal River and from vehicles travelling on the gravel roads of the area. Farming activity, especially ploughing of the irrigation fields, may generate dust during certain periods of the year.

#### New Source

The potential source of air pollution on Riet Puts will be nuisance dust generated by the opencast excavations, the loading of gravels onto the transport trucks, the dumping of gravels over each sites primary screen as well as from the movement of trucks and vehicles on the site roads. Most of the roads are however covered with tailings, which act as a natural measure of dust suppression and trenching does not appear to generate significant dust. Gas emissions from machinery will be negligible and within legal limits.

### NOISE

Noise on site will be generated by the large vehicles (tip trucks, front-end loaders, back actors and bulldozers) and from the working pans. There are other mining operations on both sides of the mining operations as well as across the Vaal River. Although these operations do generate noise the overall impact can be described as negligible. The most susceptible receptors of noise will be the residents of Windsorton who reside across the Vaal River from the Riet Puts operation. Operating hours are however restricted to day times.

### VISUAL ASPECTS

The Riet Puts prospecting activities are visible from the bridge that crosses the Vaal River along the R374 road and from the opposite bank of the Vaal River, where the residential area of Windsorton is situated. Minimal dust that might be generated will be visible to the R374 road users and from across the Vaal River.



The prospecting operations on Riet Puts are visible from the bridge that cross the Vaal River along the R374 road (top), and the residential area of Windsorton is situated on the opposite bank of the Vaal River (bottom).

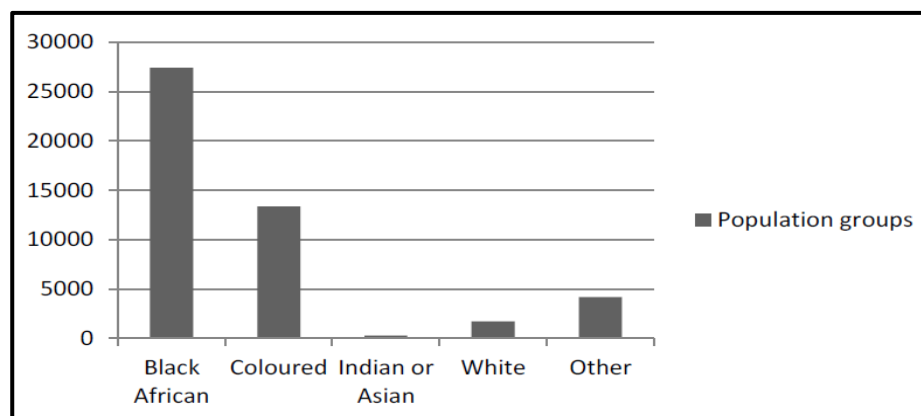


### SOCIO-ECONOMIC STRUCTURE OF THE REGION

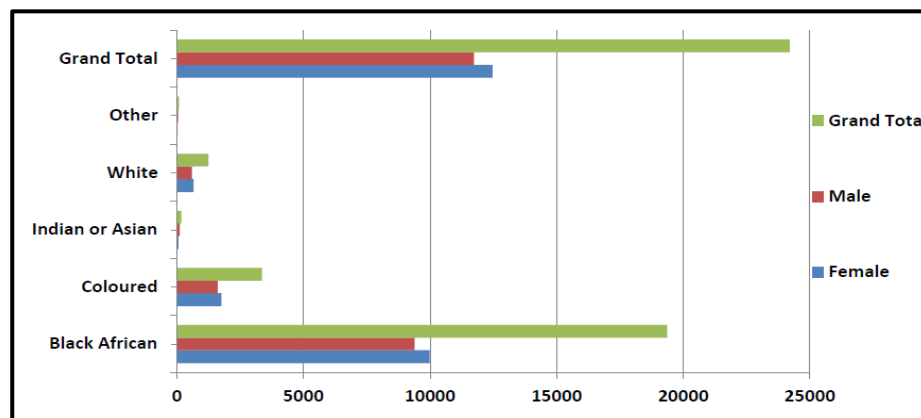
The Riet Puts operation is located within the Magareng Local Municipality and borders the Dikgatlong Local Municipality, where it has a significant effect on the Windsorton community. Therefore, both these municipalities will be discussed here. The municipalities are located in the Northern Cape and form part of Frances Baard District Municipality. Magareng comprises the town of Warrenton and covers an area of 1 542 km<sup>2</sup>, while Dikgatlong comprises Barkly West, Delportshoop and Windsorton, and covers an area of 7 315 km<sup>2</sup>. The following socio-economic information was obtained from the most recent records in the Local Government Handbook and from the Integrated Development Plans (2014/2015) of the respective local municipalities.

#### Ethnic profiles

##### DIKGATLONG LOCAL MUNICIPALITY



##### MAGARENG LOCAL MUNICIPALITY





### Demographic elements

DEMOGRAPHICS	DIKGATLONG	MAGARENG
<b>Population</b>	46 841	24 204
<b>Age Structure</b>		
Population under 15	31.60%	31.40%
Population 15 to 64	63.10%	62.20%
Population over 65	5.30%	6.40%
<b>Dependency Ratio</b>		
Per 100 (15-64)	58.50	60.70
<b>Sex Ratio</b>		
Males per 100 females	97.00	94.10
<b>Population Growth</b>		
Per annum	2.02%	1.08%
<b>Labour Market</b>		
Unemployment rate (official)	39.70%	41.20%
Youth unemployment rate (official) 15-34	49.00%	51.80%
<b>Education (aged 20 +)</b>		
No schooling	17.70%	16.60%
Higher education	2.70%	3.50%
Matric	20.30%	24.00%
<b>Household Dynamics</b>		
Households	11 967	6 120
Average household size	3.70	3.90
Female headed households	35.40%	41.70%
Formal dwellings	78.50%	87.10%
Housing owned	47.10%	58.60%
<b>Household Services</b>		
Flush toilet connected to sewerage	60.00%	81.20%
Weekly refuse removal	49.60%	63.30%
Piped water inside dwelling	30.70%	37.00%
Electricity for lighting	75.90%	85.00%

### Service delivery

Service deliver for 2013/2014	DIKGATLONG	MAGARENG
<b>Water</b>		
Number of households and non-domestic provided	10 210	6 907
Number of domestic households/delivery points	10 210	6 771
Inside the yard	9 960	4 985
Less than 200m from yard	0	1 786
More than 200m from yard	250	0
Domestic households with access to free basic service	1 228	2 343
<b>Electricity</b>		
Number of households and non-domestic provided	10 398	4 998
Domestic households with access to free basic service	1 228	2 343
<b>Sewerage and Sanitation</b>		
Number of households and non-domestic provided	10 210	5 201
Number of households using		
Flush toilet - public sewerage	1 932	4 097
Flush toilet - septic tank	8 248	968
Ventilated pit latrine	0	0
Bucket system	30	0
Other	0	0
Domestic households with access to free basic service	1 228	2 343
<b>Solid Waste Services</b>		
Number of households and non-domestic provided	10 210	4 985
Domestic households with access to free basic service	1 228	2 343

### **(B) Description of the current land uses**

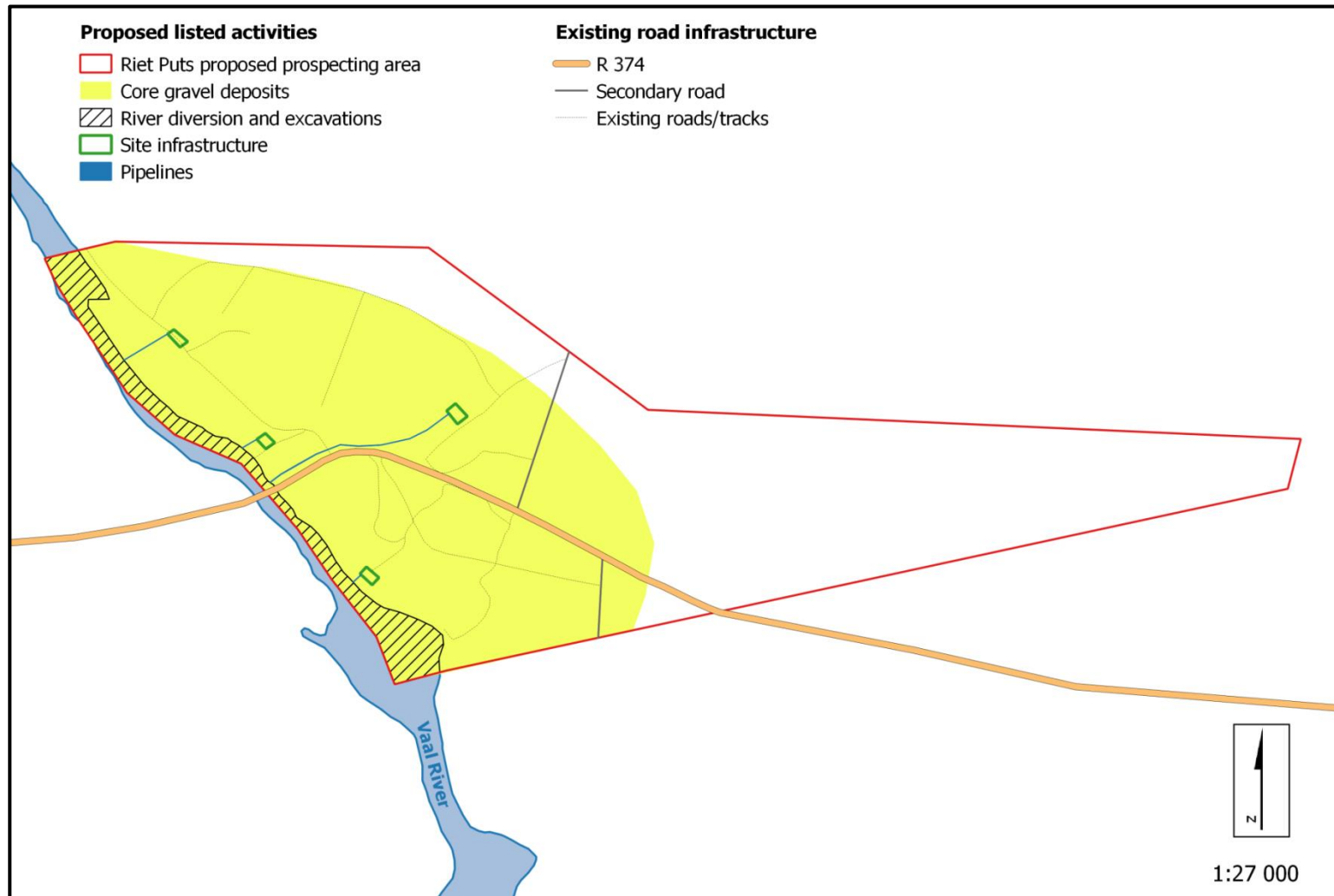
Currently, the major land uses in the area are alluvial diamond mining and agriculture. According to the Southern African Agricultural Geo-referenced Information System, the land capability of the area is non-arable with moderate potential grazing land. The grazing capacity is between 14 and 17 ha/AU, with the agricultural region being demarcated for cattle farming. Riet Puts is categorised to have a marginal suitability for maize yield and no suitability for sorghum, soya beans, sugarcane or sunflower.

### **(C) Description of specific environmental features and infrastructure on the site**

The infrastructure on site is comprehensively discussed in section d) ii) as part of the methodology discussion and a basic description of the environment was presented in section h iv) (A) as part of the baseline report. Specific environmental features and infrastructure will be comprehensively discussed in the EIA report after all specialist assessments have been completed. These include:

- Vaal River and associated wetlands to be disturbed by diversions and excavations;
- Site infrastructure near heritage resources; and
- Ore transport activities on the R374 road.

(D) Environmental and current land use map.



### v) Impacts identified

Nature of impact	Significance	Probability	Duration
Sterilisation of mineral resources.	Very low	Highly unlikely	Decommissioning
Changes to surface topography due to topsoil removal, excavations, placement of infrastructure and development of residue deposits.	Low to medium	Certain	Post-closure
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	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	Residual
Deterioration of water resources through excavations and diversion in the river.	High	Certain	Residual
Deterioration in water quality through spillages and runoff from sites.	Medium	Possible	Decommissioning
The clearance of vegetation; potential loss of floral species with conservation value; potential loss of ecosystem function.	Low to medium	Certain	Life of operation
Proliferation of alien invasive plants species.	Low to medium	Possible	Residual
Displacement of faunal species.	Low	Possible	Life of operation
The loss, damage and fragmentation of floral and faunal habitats; potential loss of ecosystem function.	Medium to high	Certain	Residual



Nature of impact	Significance	Probability	Duration
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	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	Decommissioning
Visual impact of the mine infrastructure, excavations, slimes dams, and stockpile; visibility of dust.	Medium	Certain	Decommissioning
Potential negative impacts on traffic safety and deterioration of the existing road networks.	Medium	Possible	Decommissioning
The deterioration of sites of cultural and heritage importance.	High	Certain	Residual
Loss of agricultural 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	Decommissioning
Positive socio-economic impacts during operation, upliftment of previously disadvantaged communities.	Medium to high	Certain	Decommissioning and residual

vi) **Methodology used in determining the significance of environmental impacts**

The limits were defined in relation to prospecting 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:

**No Impact** - There will be no impact on the system or any of its parts.

**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** - 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.

**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.

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**

During the operational stages of the prospecting operation, there is a possibility of sterilisation of the mineral reserves and resources due to improper placement of infrastructure. The infrastructure and slimes dams will alter the topography by adding features to the landscape. Topsoil removal and excavations will unearth the natural topography. The construction of infrastructure and various facilities in the prospecting area can also result in loss of soil due to erosion. Vegetation will be stripped in preparation for placement of infrastructure and excavations, 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 cleared areas will be rehabilitated, but full restoration of soils 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.

There is also a possibility that equipment might leak oil, thus causing surface spillages. The hydrocarbon soil contamination will render the soil unusual 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 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. If no, or inadequate ablution facilities are available then workers might feel the need to use the nearby river or streams for this purpose.

Prospecting 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. It is likely that the riparian vegetation and any protected species will be destroyed during the operation.

While general clearing of the area and prospecting 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. 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 study site. Pockets of fragmented natural habitats hinder the growth and development of populations.

Alluvial operations impact on the water environment by altering the physical characteristics of the river. These impacts include the alteration of flow patterns, creation of islands due to the modification of the riverbed, ponding of water in excavations along the riverbanks, temporary damming of water and an increase in the concentration of suspended solids and sedimentation due to disturbance of the riverbed and surrounding habitat. Excavations can also have a negative effect on the instream habitat; causing stream bank destabilization, increased erosion, sediment and nutrient inputs, and reduced shading and bank cover leading to increased stream temperatures.

During the 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 surface infrastructure of Riet Puts is situated across the Vaal River from Windsorton, with typically low to moderate levels of noise, dominated by man-influenced sounds such as traffic on the R374, activities in Windsorton, mining and very occasional air traffic. The proposed 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 and infrastructure of the existing roads is expected to be moderate, especially for the transport of ore to Holpan. Furthermore, if road safety is not administered it can have a high impact on the safety of fellow road users.

The activities on site have the potential to impact upon heritage resources. Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon these resources will be permanent and irreversible. Any movement of vehicles, equipment or personnel through areas containing these artefacts could result in the permanent destruction of the artefacts and loss of heritage resources.

The operation will create a number of new employment opportunities and uplift the Wedberg community. 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 could possibly impact on safety and security of local residents. During the decommissioning and at closure of the site, 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 site closure is not considered to be an associated potential impact, because the operation is rather small. However, 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 operation-related businesses.

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



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

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 excavation blocks 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 exploration geologist.

Topography

**Level of risk:** Low

**Mitigation measures**

- Backfill all excavations continuously.
- Employ effective rehabilitation strategies to restore surface topography of excavations and plant sites.
- Stabilise the residue deposits.
- All temporary infrastructure will be demolished during closure.

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.

### 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 operation must co-ordinate different activities in order to optimise the utilisation of the excavated trenches and thereby prevent repeated and unnecessary excavations.
- Construction that requires the clearing of large areas of vegetation and excavation should ideally occur during the dry season only.
- Construction during the rainy season (November to March) should be closely monitored and controlled.
- The run-off from the exposed ground should be controlled with the careful placement of flow retarding barriers.
- Any soil that is excavated 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 lying 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 operation should avoid land with 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.

### Land capability and land use

**Level of risk:** Very low

#### **Mitigation measures**

- Ensure that optimal use is made of the available land through proper planning of activities.
- 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.

### Ground water

**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.
- Monitor the quality of the boreholes located down-gradient of the mining site.

### Direct surface water impacts

**Level of risk:** High

#### **Mitigation measures**

- Limit operational footprint within the riverbeds.
- Careful management of operations within the riparian zones to minimize disturbances.
- Employ effective rehabilitation strategies to restore river characteristics.
- Adjust operation plans to exclude sensitive wetland areas.
- More mitigation measures will be added after the results of the technical assessments have been obtained.

### Indirect surface water impacts

**Level of risk:** Low

#### **Mitigation measures**

- Sufficient care must be taken when handling hazardous materials to prevent pollution.
- Under no circumstances may ablutions occur outside of the provided facilities.
- No uncontrolled discharges from the sites to any surface water resources shall be permitted.
- 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 by approved contractor.
- Spill kits must be easily accessible and workers must undergo induction on how to use them.
- 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 water courses within the study area.
- Provide bins for staff at appropriate locations, particularly where food is consumed.
- 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 and the growth of natural plant species.
- Footprint areas of the activities must be scanned for Red Listed and protected plant species prior to destruction. It is recommended that these plants are identified and marked prior to mining and 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 flora occurring on site.

### Alien 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 operation in order to avoid the destruction of pristine 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 proposed activities should be demarcated on site layout plans, and no persons or vehicles may leave the demarcated area except those authorised to do so. Those areas surrounding the prospecting 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 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:** Medium

#### **Mitigation measures**

- Prospecting 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 prospecting 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 excavations 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 open areas are exposed should be restricted. Excavations should not be delayed after vegetation has been cleared and topsoil removed.
- Dust suppression methods should, where logistically possible, must be implemented at all areas that may / are exposed for long periods of time.
- For all 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 prospecting activities to daytime unless agreements obtained to do 24 hr 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.



- 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:** 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 operation.
- Remove rubble and other building rubbish off site as soon as possible or place it in a container in order to keep the site free from additional unsightly elements.
- Locate any material stockpiles outside of the visual field of sensitive visual receptors.
- 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-operation 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:** Medium

#### **Mitigation measures**

- Implement measures that ensure the adherence to traffic rules.

### Heritage resources

**Level of risk:** Medium to high

#### **Mitigation measures**

- The heritage and cultural resources (e.g. graveyards, ruins, historic structures, etc.) must be protected and preserved by the delineation of a no go zone.
- Intact bedrock strata should be avoided during excavation of terrace gravels where possible.
- Stone tools should be avoided where possible and fresh exposures should be recorded before destruction. All stone tool artefacts should be recorded, mapped and collected before destruction.
- Should the operation necessitate impact on any heritage resources, the company should apply for a SAHRA destruction permits prior to commencement of such activity.

### Socio-economic

**Level of risk:** Very low

#### **Mitigation measures**

- The operation 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.

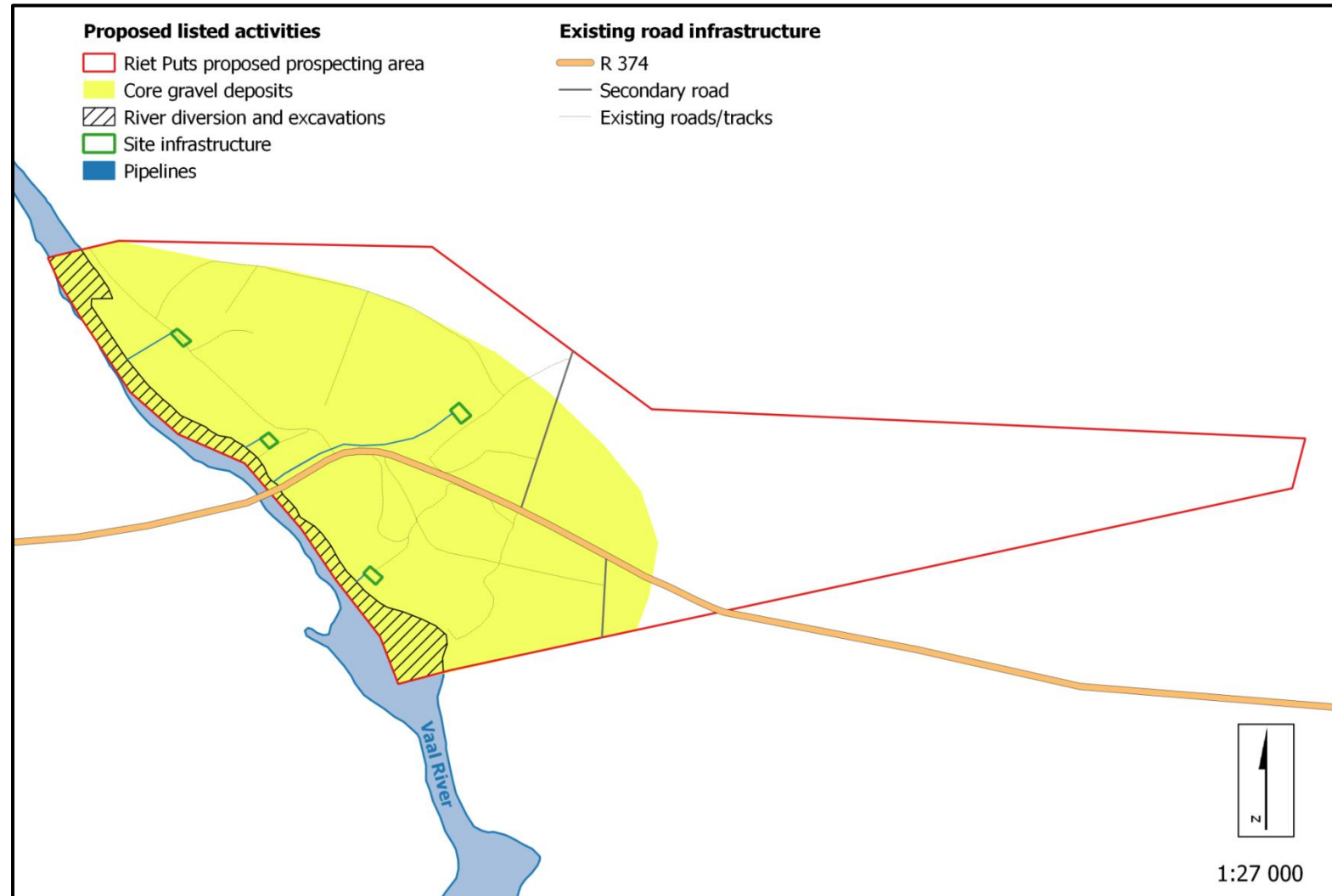
### Interested and affected parties

**Level of risk:** Very low

#### **Mitigation measures**

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

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



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

The locality of the prospecting operation is based on the location of the diamondiferous deposits that have been identified through previous mining activities. There is therefore no other alternative with regard to the overall operation footprint.

The location of the sites and associated infrastructure is primarily based on past mining infrastructure, proximity to the access roads, proximity to the areas earmarked for excavations and limited additional impact on the environment. The property was mined in the past and some infrastructure had already been constructed during these operations. A conspicuous disturbed footprint was left by these activities. It will therefore cause additional impacts if this infrastructure is moved and render the consideration of alternative sites useless.

The mining activities and methodologies associated with alluvial diamond bulk sampling (i.e. open pits with continued backfilling) is the only economic viable method currently being used by the diamond fraternity. There is no other better alternative method.

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

Not applicable. There is no alternative development location for the site. The location of the sites and associated infrastructure is primarily based on past mining infrastructure.

**i) Plan of study for the Environmental Impact Assessment process**

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

Alternatives in terms of the layout and design of the river diversions will form part of the technical assessments by engineering consultants. The results of these assessments will be used to consider alternatives and will be conversed in the EIA report.

The slimes dams will also be assessed by ECSA registered engineering consultants in order to evaluate the capacity and risks of the current slimes dams. Designs will be used to consider alternatives and will be conversed in the EIA report.

Prospecting activities have already been approved under a Preferent Prospecting Right and activities have already proceeded. The option of not going ahead with the operation will only be considered for activities in the Vaal River (diversion and alterations of river beds and banks).

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

**1. The clearing of vegetation for:**

- Access roads and haul roads
- Surface infrastructure
- Bulk sampling

**2. The stripping and stockpiling of topsoil**

**3. Open pit sampling**

**4. Altering the beds and banks of the Vaal River**

**5. The development of temporary stockpiles:**

- Overburden
- Product
- ROM

**6. The backfilling of open pits**

**7. The development of a temporary berm wall (diversion) within the Vaal River**

**8. The construction slimes dams**

**9. Loading, hauling and transporting of ROM, product and material**

**10. Loading and transporting of concentrate bins off-site to Holpan**

**11. Water holding facilities, pipeline and stormwater control**

- Water storage facility
- Pipeline for transporting water

### 12. Fuel storage and refuelling bays

- Diesel tanks
- Concrete bund walls and diesel depots

### 13. Supporting infrastructure:

- Office complexes
- Workshops
- Ablution facilities
- Pipelines transporting slimes
- Pipeline transporting return water

### iii. Description of aspects to be assessed by specialists

Most specialist studies are needed in order to investigate the potential environmental impacts associated with the prospecting activities, while other more technical specialists are needed to provide strategies and technical specifications for infrastructure that could potentially alleviate impact the environment. Terms of reference for each of these studies are unique but include the identification and delineation of respective environmental attributes, assessing the state of these attributes, identifying potential impacts relating to these attributes and making recommendations regarding mitigation measures and legal requirements. The following specialists studies will be completed:

1. An ecological assessment will be performed by Dr Betsie Milne, during which small-scale vegetation patterns and species of conservation concern will be identified. Alien invasive species and bush encroachers will also be identified. This assessment will also identify faunal distribution, habitats and species of conservation concern.
2. A surface water resource assessment will be performed by Dr Betsie Milne in May 2016, during which the watercourses and wetlands on Riet Puts will be identified, delineated and classified in terms of PES, EIS and functionality.
3. A Heritage Impact Assessment will be performed by Dr Lloyd Rossouw in May 2016, during which all potential heritage resources on Riet Puts will be identified and mapped.
4. Technical assessments by engineering consultants will be conducted in order to provide additional specifications and information pertaining to the slimes dams. Methodology and designs pertaining to the planned river diversions will also be assessed.



#### iv. 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 prospecting 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 prospecting activities include impacts on air quality, noise, fauna, flora, ground water, terrestrial ecology, heritage resources, socio-economy, aquatic environments, visuals, stormwater 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 prospecting, a number of feasible options will be explored. The various alternatives in terms of land use, project infrastructure, prospecting method and proceeding without the prospecting operation will be assessed in terms of logistical practicality, environmental acceptability and economic feasibility. Alternatives for the locality of the prospecting operation will however not form part of this consideration, as the location of the prospecting site is determined by the geological location of the mineral resource.

#### v. The proposed method of assessing duration significance

RATING	DESCRIPTION
Residual	The environmental impact will be permanent.
Decommissioning	The environmental impact identified will operate beyond the life of operation.
Life of operation	The environmental impact identified will operate for the duration of life of the project.
Short term	The environmental impact identified will operate between 6 months to 1 year
Immediate	The impact will be limited to isolated incidences that are expected to occur very sporadically or will operate for less than 6 months.

### vi. The stages at which the competent authority will be consulted

The competent authority (Northern Cape Department of Mineral Resources in Kimberley) was notified of the project by means of a pre-application meeting, as well as through the submission of documents in terms of the prospecting right amendment (Section 102) application and the environmental authorisation application.

The DWS (competent authority in terms of the water use license application) was notified of the project by means of a pre-consultation meeting. The DWS will also be regarded as an IAP through the process and received all relevant notifications.

This Scoping Report has been submitted to the DMR for comment and feedback.

Future stages of the consultation will include:

- Any potential requested meetings or site visits;
- Remaining timeframes associated with the environmental authorisation and stakeholder engagement phases as shown below:

ENVIRONMENTAL AUTHORISATION PROCESS TASK		RESPONSIBLE PARTY	EXPECTED DATE
1	Submit IAP Consultation Report	EAP	1 June 2016
2	Submit EIAr & EMPr	EAP	23 September 2016
3	Receive outcome / ROD	DMR	08 January 2017

- The DWS will receive a WULA for comment and approval.

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

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

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

- A site notice was placed at the entrance gate along the R347 road on 21 April 2016. On the same day, the same notice was also placed at JJ Oppihoek, a local convenient store in Windsorton and at The N12 Outspan Ranch, a local motel which is situated on the corner of the N12 and the R347 roads. With these notices, a legal background and project description were provided and all passers-by were requested to submit any written comments, to request additional information or to register as IAPs by contacting the designated consultant; before 31 May 2016. No response has been received yet.
- An advert was published in the Diamond Fields Advertiser on 20 April 2016 to notify the general public of the proposed prospecting operation. With this advert, a legal background and project description were provided and all readers were requested to submit any written comments, to request additional information or to register as IAPs by contacting the designated consultant; before 31 May 2016. No response has been received yet.
- All of the relevant authorities located in Kimberley were notified through notice letters that were hand-delivered. Notice letters were also sent with registered post to the local municipalities of Warrenton (Magareng Local Municipality) and Barkly West (Dikgatlong Local Municipality), while a notice letter was emailed to Department of Agriculture, Forestry and Fisheries in Upington. With these letters, a legal background and project description were provided and all known activities requiring authorisation were listed. Authorities were requested to submit any written comments, to request additional information or to register as IAPs by contacting the designated consultant; before 31 May 2016. No response has been received yet.

- A heritage case was listed on the SAHRIS database. Through SAHRIS, the South African Heritage Resource Agency is able to provide a heritage management tool to all heritage bodies and custodians of heritage, as well as to local planning authorities and provincial heritage resources authorities. The system enables the efficient and coordinated management of our heritage, and the maximum benefit to heritage resources by appropriate promotion and use of these resources. SAHRIS is the first online government service, worldwide, which allows the public to view and comment on developments in their area on a GIS platform. A general notice, similar to the notice boards was added to the heritage case profile. With this notice, a legal background and project description were provided and SAHRIS users were requested to submit any written comments, to request additional information or to register as IAPs by contacting the designated consultant; before 31 May 2016. No response has been received yet.

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

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 prospecting 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.

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).

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

TASKS	DESCRIPTION
<b>Determining environmental attributes</b>	<p>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.</p>
<b>Identification of impacts and risks</b>	<p>The identification of potential impacts of the prospecting 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.</p> <p>Considering the factors listed above and based on the EAPs knowledge and experience, environmental impacts that could potentially result from the prospecting activities include impacts on air quality, noise, fauna, flora, ground water, terrestrial ecology, heritage resources, socio-economy, aquatic environments, visuals, stormwater and erosion.</p>
<b>Consideration of alternatives</b>	<p>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 prospecting, a number of feasible options will be explored. The various alternatives in terms of land use, project infrastructure, prospecting method and proceeding without the prospecting operation will be assessed in terms of logistical practicality, environmental acceptability and economic feasibility.</p> <p>Alternatives for the locality of the prospecting operation will however not form part of this consideration, as the location of the prospecting site is determined by the geological location of the mineral resource.</p>



TASKS	DESCRIPTION
<p><b>Process to assess and rank impacts</b></p>	<p>The limits were defined in relation to prospecting 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 will be calculated by using the following formula:</p> $(Severity + Spatial Scope + Duration) \times Probability weighting$ <p>For the impact assessment, the different project activities and associated infrastructure will be identified and considered in order to identify and analyse the various possible impacts. These include roads and hauling, excavating, waste disposal, topsoil storage, residue deposit dam, waste rock dumps, plant and processing area, offices, workshops, accommodation and ablution facilities, water storage facilities, diesel tanks, pipelines, other temporary buildings, etc.</p> <p>Significance of impacts is defined as follows:</p> <p><b>No Impact</b> - There will be no impact on the system or any of its parts.</p> <p><b>Very Low</b> - 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.</p> <p><b>Low</b> - Impact would have little real effect. Mitigation and/or remedial activity would be either easily achieved or little would be required or both.</p> <p><b>Medium</b> - 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.</p> <p><b>High</b> - Impacts of substantial order. Mitigation and/or remedial activity would be feasible but difficult, expensive, time consuming or some combination of these.</p> <p><b>Very High</b> - 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.</p>

TASKS	DESCRIPTION																												
Process to assess and rank impacts (cont.)	The criteria used to assess the significance of the impacts are shown in the table below:																												
	<table><tr><th>Weight</th><th>Severity</th><th>Spatial scope (Extent)</th><th>Duration</th></tr><tr><td>6</td><td>Disastrous</td><td>Trans boundary effects</td><td>Residual</td></tr><tr><td>5</td><td>Catastrophic / major</td><td>National / Severe environmental damage</td><td>Residual</td></tr><tr><td>4</td><td>High/ Critical / Serious</td><td>Regional effect</td><td>Decommissioning</td></tr><tr><td>3</td><td>Medium / slightly harmful</td><td>Immediate surroundings / local / outside mine fence</td><td>Life of operation</td></tr><tr><td>2</td><td>Minimal/potentially harmful</td><td>Slight permit deviation / on-site</td><td>Short term / construction (6 months – 1 yrs)</td></tr><tr><td>1</td><td>Insignificant / non-harmful</td><td>Activity specific / No effect / Controlled</td><td>Immediate (0 – 6 months)</td></tr></table>	Weight	Severity	Spatial scope (Extent)	Duration	6	Disastrous	Trans boundary effects	Residual	5	Catastrophic / major	National / Severe environmental damage	Residual	4	High/ Critical / Serious	Regional effect	Decommissioning	3	Medium / slightly harmful	Immediate surroundings / local / outside mine fence	Life of operation	2	Minimal/potentially harmful	Slight permit deviation / on-site	Short term / construction (6 months – 1 yrs)	1	Insignificant / non-harmful	Activity specific / No effect / Controlled	Immediate (0 – 6 months)
	Weight	Severity	Spatial scope (Extent)	Duration																									
	6	Disastrous	Trans boundary effects	Residual																									
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	<table><tr><th>Weight number</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th></tr></table>	Weight number	1	2	3	4	5																						
	Weight number	1	2	3	4	5																							
	<table><tr><th colspan="2">Frequency</th><td colspan="5"></td></tr></table>	Frequency																											
	Frequency																												
	Probability	Frequency of impact	Highly unlikely	Rare	Low likelihood	Probable / possible	Certain																						
			Practically impossible	Conceivable but very unlikely	Only remotely possible	Unusual but possible	Definite																						
		Frequency of activity	Annually or less	6 monthly / temporarily	Infrequent	Life of operation	Life of operation																						

| | CONSEQUENCE |  |  |  |  | |-------------|--|--|--|--| |-------------|--|--|--|--| |
| | Colour code | Significance rating | Value    | Negative impact Management strategy | Positive Impact Management strategy | |-------------|---------------------|----------|-------------------------------------|-------------------------------------| |             | VERY HIGH           | 96 – 108 | Improve current management          | Maintain current management         | |             | HIGH                | 81 – 95  | Improve current management          | Maintain current management         | |             | MEDIUM – HIGH       | 66 – 80  | Improve current management          | Maintain current management         | |             | LOW – MEDIUM        | 41 – 65  | Improve current management          | Maintain current management         | |             | LOW                 | 26 – 40  | Improve current management          | Maintain current management         | |             | VERY LOW            | 1 – 25   | Improve current management          | Maintain current management         | |             | NO IMPACT           | 0        | Not applicable                      | Not applicable                      | |

TASKS	DESCRIPTION
<b>Contribution of specialist reports</b>	<p>Most specialist studies are needed in order to investigate the potential environmental impacts associated with the prospecting activities, while other more technical specialists are needed to provide strategies and technical specifications for infrastructure that could potentially alleviate impact the environment. Terms of reference for each of these studies are unique but include the identification and delineation of respective environmental attributes, assessing the state of these attributes, identifying potential impacts relating to these attributes and making recommendations regarding mitigation measures and legal requirements.</p>
<b>Determination of impact management objectives and outcomes</b>	<p>The key aim of impact management is to ensure that all the significant impacts are ameliorated. Natural and existing mitigation measures will be considered. Natural mitigation measures will be defined as natural conditions, conditions inherent in the project design and existing management measures, which alleviate impacts.</p> <p>The following will be considered (but are not limited to) for guidance in determining the impact management objectives:</p> <ul style="list-style-type: none"><li>• The applicant's institutional objectives, policies and practice;</li><li>• Impact management objectives from specialist reports;</li><li>• The various relevant national and provincial Acts and Regulation;</li><li>• The general objectives of integrated environmental management laid down in the NEMA, ensuring that environmental considerations are fully integrated into all stages of the development process in order to achieve a desirable balance between conservation and development;</li><li>• The sustainable development objectives of the MPRDA;</li><li>• South African National Standards;</li><li>• Industry best practice guidelines</li><li>• Resource Water Quality Objectives;</li><li>• Applicable environmental quality objectives;</li><li>• Closure objectives;</li></ul>

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

NAME OF ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	POTENTIAL FOR RESIDUAL RISKS
Roads	Nuisance dust will be created by the prospecting equipment hauling material between the open excavation areas and the plant area.	Dust control Water spraying Well maintained equipment	Medium
	Where new haulage roads will be created the natural habitat of the animals will be disturbed and/or destroyed.	Speed limits Environmental Awareness	High
	Where new haulage roads will be created the vegetation will be disturbed and/or destroyed.	Stripping of topsoil and concurrent rehabilitation	High
	No impact to groundwater is expected from the roads that will be used by the planned prospecting operation.	Pollution control and good housekeeping practice	No significance
	Noise from the prospecting equipment on the haulage roads will be created.	Noise control Well maintained equipment	Low
	No impact to soil is expected from the roads that will be used by the planned prospecting operation.	Stripping of topsoil and concurrent rehabilitation	No Significance
	No impact to surface water is expected from the roads that will be used by the planned prospecting operation.	Pollution control and on-going housekeeping	No Significance
	No impact to topography is expected from the roads that will be used by the planned prospecting operation.	Concurrent rehabilitation	No Significance
	The haulage roads will be visible to some extent from the immediate surroundings.	Concurrent Rehabilitation	No Significance

NAME OF ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	POTENTIAL FOR RESIDUAL RISKS
Pitting/excavating	Nuisance dust will be created by mining equipment excavating material from the prospecting pits.	Dust control Well maintained equipment	Medium
	Where new pits/ excavations will be created the natural habitat of the animals will be disturbed and/or destroyed.	Speed limits Environmental Awareness	High
	Where new pits/ excavations will be created the vegetation will be disturbed and/or destroyed.	Stripping of topsoil and concurrent rehabilitation	High
	No impact to groundwater is expected from the creation of excavations.	Pollution control and good housekeeping practice	No Significance
	Noise impact from the prospecting equipment will be created.	Noise control Well maintained equipment	Medium
	The disturbance of the soil structure during excavation activities.	Stripping of topsoil and concurrent rehabilitation	High
	The destruction of surface water resource characteristics is expected during excavation activities in the Vaal River.	Effective planning, management and rehabilitation. Pollution control and on-going housekeeping	High
	Changing of natural slopes by prospecting pitting activities.	Concurrent rehabilitation	Low
	The excavations will be visible to some extent from the immediate surroundings.	Concurrent Rehabilitation	No Significance

NAME OF ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	POTENTIAL FOR RESIDUAL RISKS
Temporary waste dump area & topsoil storage area	Nuisance dust will be created by the prospecting equipment when the material is dumped/ stockpiled in these areas.	Dust control Well maintained equipment	Medium
	The natural habitat of the animals will be disturbed and/or destroyed in these areas.	Speed limits Environmental Awareness	High
	The vegetation will be disturbed and/or destroyed in these areas.	Stripping of topsoil and concurrent rehabilitation	High
	No impact to groundwater is expected.	Pollution control and good housekeeping practice	No Significance
	Noise impact from the prospecting equipment will be created.	Noise control Well maintained equipment	Medium
	The disturbance of the soil structure.	Stripping of topsoil and concurrent rehabilitation	High
	The altering of surface water resource characteristics is expected.	Effective planning, management and rehabilitation. Pollution control and on-going housekeeping	High
	Changing of natural slopes.	Concurrent rehabilitation	Low
	These temporary storage areas will be visible to the immediate surroundings.	Concurrent Rehabilitation	No Significance



NAME OF ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	POTENTIAL FOR RESIDUAL RISKS
Residue disposal dam	No impact to air quality is expected.	Dust control Well maintained equipment	No Significance
	The natural habitat of the animals are disturbed and/or destroyed during the creation of slimes dams.	Speed limits Environmental Awareness	High
	The vegetation are disturbed and/or destroyed when the slimes dams are created.	Stripping of topsoil and concurrent rehabilitation	High
	No impact to groundwater is expected.	Pollution control and good housekeeping practice	No significance
	No noise impact is expected.	Noise control Well maintained equipment	No significance
	The disturbance of the soil structure when the slimes dams are created	Stripping of topsoil and concurrent rehabilitation	High
	Impact to surface water includes sediment runoff from slimes dam to the river.	Pollution control and on-going housekeeping	Medium
	Changing of natural slopes.	Concurrent rehabilitation	Low
	The slimes dams will be visible to the immediate surroundings.	Concurrent Rehabilitation	No Significance

NAME OF ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	POTENTIAL FOR RESIDUAL RISKS
Plant & processing area	Nuisance dust will be created by the prospecting equipment.	Dust control Well maintained equipment	Medium
	Where the plant and processing area will be created the natural habitat of the animals will be disturbed and/or destroyed.	Speed limits Environmental Awareness	High
	Where the plant and processing area will be created the vegetation will be disturbed and/or destroyed.	Stripping of topsoil and concurrent rehabilitation	High
	No impact to groundwater is expected.	Pollution control and good housekeeping practice	No Significance
	Noise from the plant and processing equipment will be created.	Noise control Well maintained equipment	Medium
	The disturbance of the soil structure when the plant and processing area is created.	Stripping of topsoil and concurrent rehabilitation	High
	The utilization of water from the Vaal River for the processing of material.	Pollution control and on-going housekeeping	Medium
	No impact to the topography is expected from the plant and processing area.	Concurrent rehabilitation	No Significance
	The plant and processing area will be visible to some extent from the immediate surroundings.	Concurrent Rehabilitation	No Significance

NAME OF ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	POTENTIAL FOR RESIDUAL RISKS
Associated infrastructure	No impact to air quality relating to associated infrastructure is expected.	None necessary	No significance
	Faunal habitat destruction through placement of infrastructure, faunal community disturbance through related activities, powerlines threaten certain bird species.	Environmental Awareness, search and rescue, effective rehabilitation, operation control, monitoring of birds	Low
	The destruction of natural vegetation through placement of infrastructure.	Flora harvesting permit, protected trees licence, stripping of topsoil, and concurrent rehabilitation	Low
	Hazardous fluids from machinery or refuelling can pollute underground resources.	Pollution control and good housekeeping practice	Low
	No impact to ambient noise levels relating to associated infrastructure is expected.	None necessary	No significance
	The placement of infrastructure may have resulted in compaction and sterilisation of the underlying natural soil strata. Hazardous fluids from machinery or refuelling can contaminate soil.	Contamination control, good housekeeping, effective rehabilitation	Very low
	Impact to surface water includes pollutant runoff during rainfall events.	Pollution control and proper housekeeping.	Medium
	Infrastructure altered the natural topography.	Effective rehabilitation	Very low
	Associated infrastructure is visible from the surrounding areas.	None possible during operation. Proper rehabilitation after operation has ceased.	Medium
	Impact to heritage resources relates to placement of infrastructure.	HIA to be conducted, demarcation of heritage resources	Low

### **j) Other Information required by the competent Authority**

In 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 following:

#### **(1) Impact on the socio-economic conditions of any directly affected person**

The holder of the prospecting right (Wedberg CPA) is also the landowner of the property after a successful land claim was granted to them in 2012. No other concerns, apart from the water use registration have been raised. However, 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.

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

A Heritage Impact Assessment will be conducted during the month of May 2016, by Dr Lloyd Rossouw from Paleo Field Services. The results of this assessment will be incorporated into the EIA report and control measures will be provided in the EMP report.

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

The Riet Puts prospecting right has already been granted and associated infrastructure has been established and the project has been operational since October 2015. The project is bound to the location of the mineral deposits. There are therefore no alternatives applicable to this assessment.

**UNDERTAKING REGARDING CORRECTNESS OF INFORMATION**

I **ELIZABETH MILNE** 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 have been correctly recorded in the report.



28 April 2016

**UNDERTAKING REGARDING LEVEL OF AGREEMENT**

I **ELIZABETH MILNE** 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.



28 April 2016

**- END -**