



**Sibanye-Stillwater: Western Platinum (Pty) Ltd**  
**K4 Shaft Parking Area**  
**Draft Environmental Management Programme**  
**DMRE Mining Right Reference Number: MR106**

August 2022

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# **Sibanye-Stillwater: Western Platinum (Pty) Ltd**

## **K4 Shaft Parking Area**

### **Draft Environmental Management Programme**

August 2022

Project Ref: 005 - 1020937

Prepared by: Suzanne van Rooy



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#### **VERSION CONTROL**

Alta van Dyk Environmental cc

Version: Draft

Approved by: Alta van Dyk

Signed:

Position: Environmental Specialist

Date: August 2022

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## ***ABBREVIATIONS***

AIS	Alien Invasive Plants
BAR	Basic Assessment Report
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
EMS	Environmental Management System
HEES	Hydrological Environmental Engineering Solutions
NEMA	National Environmental Management Act
PGM	Platinum Group Metals
UG2	Upper Group 2 Reef

# **1 INTRODUCTION AND BACKGROUND**

## **1.1 Introduction**

An Environmental Management Programme (EMPr) is a site-specific plan developed to ensure that all necessary measures are identified and implemented in order to protect the environment and comply with environmental legislation.

Sibanye-Stillwater owns and operates the Marikana Operations located near Marikana Town, in the North West Province. The Marikana Operations are divided into Western Platinum (Pty) Ltd and Eastern Platinum (Pty) Ltd, each with its own set of mining rights. The Marikana Operations are currently mining both the Merensky and Upper Group 2 Reef (UG2) for Platinum Group Metals (PGMs).

Western Platinum's K4 Shaft is currently not operational and on care and maintenance. Sibanye-Stillwater is planning to ramp up operation. In order to accommodate additional mine personnel, the shaft is planning to upgrade its mine entrance and develop an additional parking area. The proposed upgrades include provision for new access roads for taxis, busses, and employee vehicles. Planned structures include a refuse area, hawker stall, ablution facility, covered walkways and street furniture. The parking area will be covered, and brick paved.

A project-specific EMPr has been prepared for the management of all activities associated with the development of the proposed K4 Shaft parking area in order to confirm the likely environmental issues that may arise from the activities, the likely harm that these activities may pose on the surrounding environment and how these activities will be managed as to minimise any harm to the environment.

## **1.2 Purpose of the EMPr**

An EMPr is a plan or programme that sets out guidelines that describe how activities that have or could have an adverse impact on the environment, will be mitigated, controlled, and monitored and subsequently achieve a required operational and/or end state.

The purpose of the EMPr is to provide for preventative, corrective and best practice measures to ensure that activities are undertaken in an environmentally responsible manner and that such activities are sustainable in the long term. The primary objectives of the EMPr, include, but are not limited to the following:

- Describe actions that when implemented will achieve mitigation of environmental impacts, or result in approved management of activities thereby reducing the probability of impacts occurring;
- Define organisational and administrative arrangements for environmental management and monitoring, including defining the responsibilities of staff and co-ordination, liaison and reporting procedures;
- Ensuring that discussions are held with the site supervision staff, regarding pro-active environmental management, such that potential problems can be identified and mitigation measures adopted prior to any work being carried out;
- Define the procedures to be followed as to ensure environmental control, in the event of pollution occurring that may require actions.

## **1.3 Content of the Environmental Management Programme**

The EMPr has been structured in accordance with the requirements as specified in Appendix 4 of the National Environmental Management Act (Act No. 107 of 1998 (NEMA) Environmental Impact Assessment (EIA) Regulations. Refer to Table 1:1.



**Table 1:1: Requirements of an EMPr**

No	Description	Reference
1	An EMPr must comply with Section 24N of the Act and include-	
a)	details of: <ul style="list-style-type: none"> <li>(i) the EAP who compiled the EMPr; and</li> <li>(ii) the expertise of the EAP to prepare an EMPr, including a Curriculum Vitae;</li> </ul>	Chapter 2 Annexure A
b)	a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Chapter 3
c)	a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	Figure 3:3
d)	a description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including– <ul style="list-style-type: none"> <li>(i) planning and design;</li> <li>(ii) pre-construction activities;</li> <li>(iii) construction activities;</li> <li>(iv) rehabilitation of the environment after construction and in the case of a closure activity, closure; and</li> <li>(v) where relevant, operation activities;</li> </ul>	Chapter 5 Table 5:1 Table 5:2 Table 5:3
f)	a description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraph (d) will be achieved, and must, where applicable, include actions to – <ul style="list-style-type: none"> <li>(i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;</li> <li>(ii) comply with any prescribed environmental management standards or practices; and</li> <li>(iii) comply with any applicable provisions of the Act regarding closure, in the case of a closure activity</li> </ul>	Chapter 5 Table 5:1 Table 5:2 Table 5:3
g)	the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Table 5:1 Table 5:2 Table 5:3
h)	the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Chapter 10
i)	an indication of the persons who will be responsible for the implementation of the impact management actions;	Chapter 4 Table 5:1 Table 5:2 Table 5:3
j)	the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Table 5:1 Table 5:2 Table 5:3
k)	the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Chapter 10
l)	a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Chapter 10

No	Description	Reference
m)	an environmental awareness plan describing the manner in which— <ul style="list-style-type: none"> <li>(i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and</li> <li>(ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and</li> </ul>	Chapter 9
n)	any specific information that may be required by the competent authority.	None to date

## 2 ENVIRONMENTAL ASSESSMENT PRACTITIONER AND APPLICANT

### 2.1 Environmental Assessment Practitioner

Table 2:1 provides the details of the Environmental Assessment Practitioner (EAP) for the K4 Shaft Parking Area project.

**Table 2:1: Details of the Environmental Assessment Practitioner**

<b>Environmental Assessment Practitioner</b>	Suzanne van Rooy
<b>Company</b>	Alta van Dyk Environmental Consultants cc
<b>Qualifications</b>	MPhil Environmental Management (University of Stellenbosch)
<b>Professional Registrations</b>	Pr.Sci.Nat (Reg nr.400378/11) EAPASA Registered EAP (Ref 2019/1079)
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Suzanne van Rooy holds a Master's Degree in Environmental Management from the University of Stellenbosch. Suzanne's expertise is in the mining industry sector, focussing on Environmental Impact Assessments, Water Use Licence Applications, environmental performance assessments, water use licence audits, public participation and closure cost assessments. Her involvement in such projects varies from project management and co-ordination to the compilation and review of technical and environmental documents and reports. She has been involved in environmental authorisations for both underground and open cast mining operations, as well as the associated activities such as waste disposal facilities, conveyor routes, access roads, pollution control and other dams, undermining of wetlands and river crossings. She has also conducted various environmental feasibility reporting for potential mining projects.

Refer to Annexure A for the Curriculum Vitae of the EAP.

### 2.2 Applicant

The applicant for the project is Western Platinum (Propriety) Limited. The details of the applicant are shown in Table 2:2.

**Table 2:2 Details of the applicant**

<b>Applicant</b>	Western Platinum (Pty) Ltd
<b>Contact person</b>	Mandy Jubileus
<b>Postal Address</b>	Private Bag X508 Marikana, North West Province 0284
<b>Telephone number:</b>	014 571 2000
<b>Fax number:</b>	014 571 2037
<b>Email address</b>	<a href="mailto:mandy.jubileus@sibanyestillwater.com">mandy.jubileus@sibanyestillwater.com</a>

### 3 PROJECT DESCRIPTION

#### 3.1 Introduction

Sibanye-Stillwater intends to develop an additional parking area adjacent to their current K4 Shaft. proposed parking area is situated on portions 32 and 115 of the farm Zwartkoppies 296 JQ in the Rustenburg Local Municipality. The proposed parking area will include almost 600 parking spaces, a hawkers area, ablution facilities, a refuse area, refuse area, walkways, street furniture, an access road and turning circles. The parking area will be covered, and brick paved.

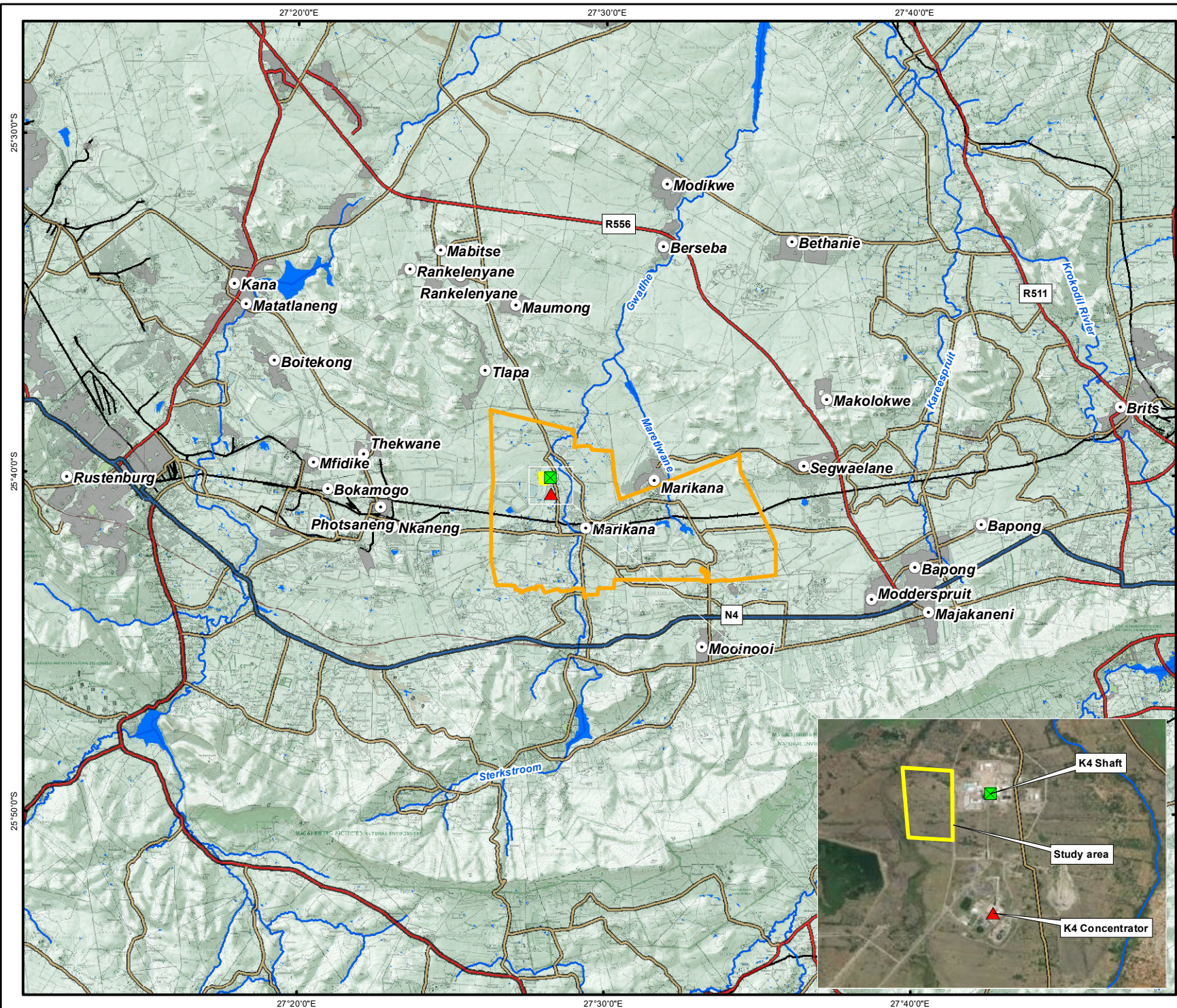
#### 3.2 Locality

The K4 Shaft is located approximately 7 km west of Marikana Town, within Rustenburg Local Municipality in the North West Province. The proposed parking area is located on portions 15 and 32 of the farm Zwartkoppies 296 JQ. Table 3:1 outlines the details relating to the location of the proposed project and Figure 3:1 shows the project location.

**Table 3:1 Project location details**

Site specific details	Description	
<b>Magisterial district</b>	Rustenburg Local Municipality Bojanala Platinum District Municipality	
<b>Distance and direction from nearest town</b>	7km west of Marikana Town	
<b>Ward number</b>	31	
<b>Properties affected</b>	<b>Farm name</b>	<b>Landowner</b>
	Zwartkoppies 296 JQ Portion 15	Western Platinum Limited
	Zwartkoppies 296 JQ Portion 32	Western Platinum Limited
<b>Adjacent properties</b>	Zwartkoppies 296 JQ portion 22	Louwrens Robinson
	Zwartkoppies 296 JQ portion 33	Western Platinum Limited
	Rooikoppies 297 JQ portion 150	Western Platinum (Pty) Ltd
	Rooikoppies 297 JQ portion 213	Western Platinum Limited
<b>SG code</b>	Zwartkoppies 296 JQ Portion 15: T0JQ00000000029600115	
	Zwartkoppies 296 JQ Portion 32: T0JQ00000000029600032	
<b>Site coordinates for proposed parking area</b>	<b>Latitude</b>	<b>Longitude</b>
	25°40'8.06"S	27°28'1.57"E



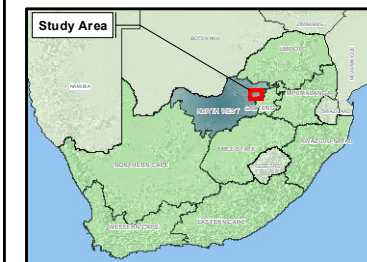


## Legend

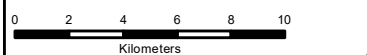
- MR106 (mining right area)
- Study area
- ▲ K4 Concentrator
- K4 Shaft
- Towns
- Buildings/Ruins

- National Freeway Route
- Arterial Route
- Main Road
- Secondary Road
- Railway
- Contours
- Rivers
- Cadastral Farms

- Built Up Areas
- Open Areas
- Water Area



SCALE: 1: 280 000



TITLE:

Locality map of K4 Shaft Parking Area Project

CLIENT:

**Sibanye-Stillwater**

DATE: Mar 2022	PROJECT: K4_SHAFT_PA
DRAWN: THURLOW MAPPING	APPROVED: KP
MAP K4_SHAFT_PA_REV1.mxd	REV: 0

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Projection: Transverse Mercator CM: 27 Datum: WGS 84  
Source: Chief Directorate National Geo-Spatial Information,  
NGI\_TOPO50\_Mosaic\_latest\_Editions\_Jan-2017.ecw  
DWA - NGA Geosites Inset: ESRI Data and Maps

SIZE:  
A4



### **3.3 Layout plan**

Refer to Figure 3:2 for the proposed layout plan as drafted by LYT Architecture. The proposed parking area will cover approximately 6 ha of the total study area (16 ha).

### **3.4 Services required**

#### **3.4.1 Access**

As indicated in Figure 3:2, access to the parking area will be obtained from the current tar road providing access to the K4 Shaft from Karee Road to the south of the shaft.

A temporary gravel road for delivery of construction materials will be constructed north of the proposed parking area and taxi/bus rank.

#### **3.4.2 Water**

During the construction phase, potable water will be required for construction workers. Potable water will be obtained from K4 Shaft, which receives its potable water from the Rustenburg Local Municipality. During the operational phase, the constructed ablution facilities will provide potable water for personnel making use of the facilities. The potable water lines from the ablution facilities will tie in with the existing potable water lines received by K4 Shaft.

#### **3.4.3 Sewage**

During the construction phase, the contractor would have to provide chemical toilets on site. These will be located at the proposed laydown area. During the operational phase, the development will connect to the existing sewer network of K4 Shaft.

#### **3.4.4 Waste management**

During the construction phase, building rubble and a small amount of domestic waste would be generated. The contractor would have to provide adequate containers for the collection of waste. Sibanye-Stillwater will have to ensure that the contractors remove the said building rubble and domestic waste to a registered landfill site.

Any hazardous waste (e.g. soil contaminated with fuel/oil, paint tins, etc.) would have to be disposed at a Hazardous Waste Disposal Facility by a company dealing with such waste.

During the operational phase, the refuse will be collected by the contracted waste removal company and disposed of at a registered landfill site.



### 3.5 Environmental related permits required

Triggered listed activities in terms of the National Environmental Management Act (Act No. 107 of 1998) (NEMA) 2014 Environmental Impact Assessment (EIA) Regulations (as amended in 2017) are shown in Table 3:2 below. Activities in Listing 1 and 3 are triggered by the proposed development, and therefore a Basic Assessment environmental authorisation process is followed.

**Table 3:2: Listed activities triggered by the proposed K4 Shaft Parking Area project**

List and activity number	Listed activity	Description of activity
Listing Notice 1: Activity 27	The clearance of an area of 1 ha or more, but less than 20ha of indigenous vegetation	The parking area and associated infrastructure footprint is ~6ha and will require the clearance of indigenous vegetation.
Listing Notice 3: Activity 4	<p>The development of a road wider than 4 metres with a reserve of less than 13.5 meters</p> <p><u>North West:</u></p> <p>iv) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority</p> <p>vi) Areas within 5 kilometres from protected areas identified in terms of NEMPAA or from a biosphere reserve</p> <p>All Heritage Sites proclaimed in terms of National Heritage Resources Act, 1999 (Act No. 25 of 1999)</p>	<p>A new bus/taxi access road will be constructed that will be 12m wide.</p> <p>A temporary gravel access road will be used for delivery access to the laydown area.</p> <p>The proposed roads fall within a Critical Biodiversity Area in terms of the NWBSP.</p> <p>The proposed roads are located 3 km from the transition area of the Magaliesberg Biosphere.</p> <p>A heritage site has been identified adjacent to the site.</p>
Listing Notice 3: Activity 12	<p>The clearance of an area of more than 300m<sup>2</sup> or more of indigenous vegetation</p> <p><u>North West:</u></p> <p>iii) All Heritage Sites proclaimed in terms of National Heritage Resources Act, 1999 (Act No. 25 of 1999)</p> <p>Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority</p>	<p>The parking area footprint is ~6ha and will require the clearance of indigenous vegetation.</p> <p>A heritage site has been identified adjacent to the site.</p> <p>The area to be cleared falls within a Critical Biodiversity Area in terms of the NWBSP.</p>

In addition, a Water Use Licence Application will be submitted in terms of the National Water Act (Act No. 36 of 1998) (NWA) as Section 21 water uses are triggered by the proposed development.

Table 3:3 list the water uses that require authorisation in terms of Section 21 of the National Water Act for the proposed development.

**Table 3:3 List of Section 21 Water Uses to be applied for**

Section 21 Water Use	Activities which require the Water Use Licence
<p>(c) – impeding or diverting the flow of water in a watercourse</p> <p>(i) – altering the bed, banks, course or characteristics of a watercourse</p>	<ul style="list-style-type: none"> <li>Development to be undertaken within 500m of a delineated wetland.</li> </ul>

### 3.6 Sensitive areas

The following sensitive areas around the proposed K4 Parking Area have been identified:

- Delineated wetlands and watercourses (no-go area);
- Graveyard (no-go area); and

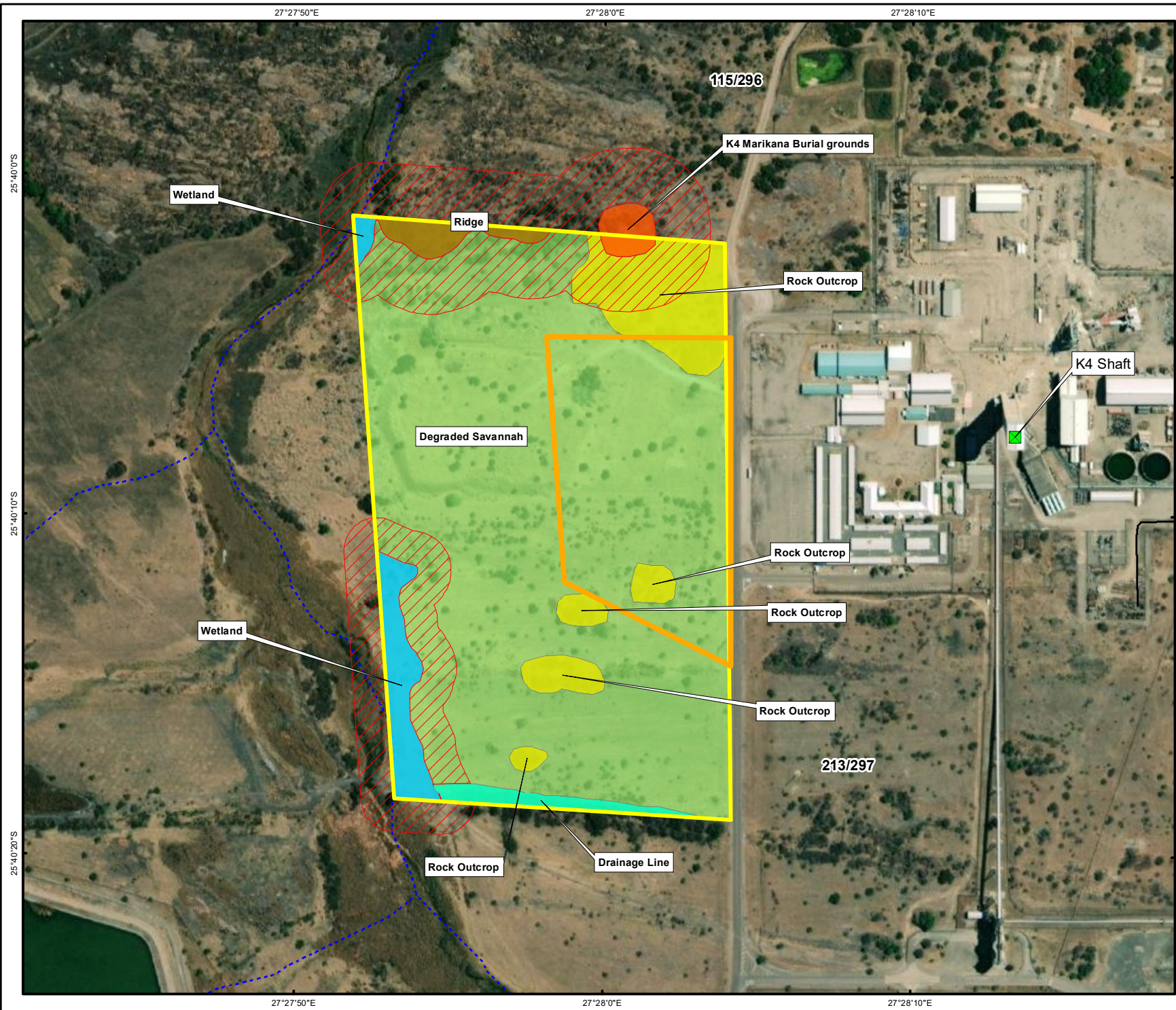


- Ridge area (no-go area).

The following buffer zones have been included around the no-go areas (which is also considered a no-go area):

- Delineated wetlands: 30m
- Graveyard: 50m buffer zone
- Ridge: 50m buffer zone.

Refer to Figure 3:3 which indicates sensitive areas and associated buffer zones relevant to the proposed K4 Shaft parking area project.

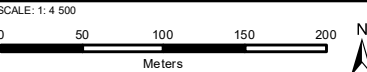
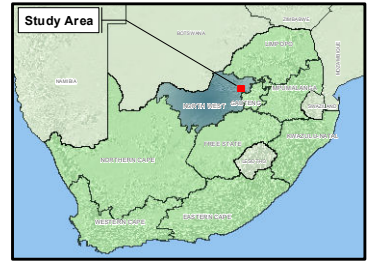


**Legend**

- Study area
- Proposed Parking Area
- K4 Shaft
- Street/Road
- Railway
- Non-Perennial River

**Habitat Type**

- Drainage Line
- K4 Marikana Burial grounds
- Ridge
- Rock Outcrop
- Wetland
- Degraded Savannah
- No Go Areas



**Figure 3:3 Sensitive areas around the proposed K4 Shaft parking area**

**Sibanye-Stillwater**

DATE: June 2022	PROJECT: K4_SHAFT_PA
DRAWN: THURLOW MAPPING	APPROVED: KP
MAP: SENS_AREAS_K4_SHAFT_PA_REV1.mxd	REV: 0

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Projection: Transverse Mercator CM: 27 Datum: WGS 84  
Source: Chief Directorate National Geo-Spatial Information,  
ESRI World Imagery Layer - 2021  
Inset: ESRI Data and Maps

SIZE:  
**A4**

## **4 ROLES AND RESPONSIBILITIES**

The roles and responsibilities indicate which team member(s) are responsible for implementation of the identified mitigation measures, management plan and monitoring. The following parties will have roles and responsibilities in the implementation of this EMPr.

- Applicant (Sibanye-Stillwater Western Platinum (Pty) Ltd);
- Construction Contractor; and
- Environmental superintendent

The roles and responsibilities of each party is described in the sections below.

### **4.1 Applicant**

Sibanye-Stillwater Western Platinum (Pty) Ltd is the applicant and will therefore be the entity monitoring the implementation of the EMPr and compliance with the authorisation. The following roles and responsibilities are assigned to the applicant:

- Ensure compliance with the conditions in the EMPr and environmental authorisation during all phases of the project;
- Ensure that contractors and operators undertake to adhere to all the provisions of the EMPr;
- Ensure that environmental monitoring takes place;
- Ensure that independent environmental audits are undertaken;
- Ensure that all monitoring and audit reports are submitted to the competent authority.

### **4.2 Construction Phase**

#### **4.2.1 Construction Contractor**

During the construction phase, the construction contractor will:

- Be responsible to have the EMPr available on site at all times;
- Ensure that all mitigation measures for which they are responsible, are implemented as described in this EMPr; and
- Ensure that all problems identified during environmental inspections, are addressed and rectified as soon as reasonably possible.

#### **4.2.2 Environmental superintendent**

The responsibilities of the Environmental superintendent during all phases of the project are as follows:

- Inspections/audits of environmental protection requirements as per the EMPr;
- Sampling and data capture in accordance with the environmental monitoring program and analysis of results; and
- Assistance with the preparation of environmental monitoring reporting.

### **4.3 Operational and Closure Phases**

#### **4.3.1 Environmental superintendent**

The responsibilities of the Environmental Superintendent are as follows:

- Be familiar with the contents and commitments documented in the EMPr;
- Implement Sibanye-Stillwater policies, procedures, and management plans;
- Review and analysis of monitoring results and preparation of reports to management and stakeholders
- Planning of and carrying out environmental training programs for employees and contractors
- Obtaining and maintaining all necessary environmental permits in liaison with the legal manager
- Management of the environmental related components of the grievance mechanism



## 5 MITIGATION AND/OR MANAGEMENT MEASURES

Table 5:1 details the environmental management objectives for the implementation of management measures for the proposed K4 Shaft project.

**Table 5:1 Environmental management objectives (SEF, 2012)**

Aspect	Management objective
Soils	<p>Conservation of soils a resource</p> <p>Minimise the disturbance and loss of topsoil</p> <p>Protect the soil surface from impacts relating to erosive and non-erosive soil degradation (loss of topsoil, erosion, pollution, removal and compaction)</p> <p>Ensure that the agricultural potential of the soil is maintained</p> <p>Limit and manage the loss of arable agricultural land</p>
Biodiversity	<p>Limit the disturbance and destruction of vegetation, fauna and habitat</p> <p>Limit further habitat disturbance and fragmentation within the boundaries of the mine</p> <p>Minimise impacts to natural flora and fauna, for example due to hunting, harvesting, dust etc</p> <p>Minimise and prevent the spread of alien and/or invasive species</p> <p>Encourage the re-establishment of indigenous and/ or appropriate vegetation on the rehabilitated areas</p>
Surface water and wetlands	<p>Minimise the potential for surface water pollution</p> <p>Prevent or limit the disturbance and destruction of delineated wetlands</p> <p>Zero discharge to the environment</p> <p>Legal compliance to Government Regulation 704 (NWA)</p>
Air quality	<p>Minimise atmospheric emissions and dust generation</p> <p>Ensure that emissions emanating from activities are controlled and mitigated to minimise the impact on the ambient environment</p>
Noise	<p>Ensure that noise levels from activities do not significantly affect staff at the site or people in the surrounding communities</p>
Heritage	<p>Protect and preserve heritage resources</p> <p>Avoid impacts on cultural and heritage sites</p> <p>Improve the awareness of Sibanye-Stillwater staff, contractors and community to issue of heritage</p>
Waste management	<p>Implement the waste hierarchy at Sibanye-Stillwater: Avoid the generation and production, of waste at source. Where such generation cannot be avoided it must be minimised re-used, refurbished or recycled and Where waste must be disposed of, ensure that the waste is treated and disposed of in an environmentally sound manner</p> <p>All waste for disposal should be disposed of at a permitted/licensed landfill designated for that specific waste type</p> <p>The NEMWA should be adhered to for wastes generated, stored, transported, treated, recycled, reused and refurbished on site</p> <p>Manage the waste in such a manner that it does not endanger health or the environment or cause a nuisance through noise, odour or visual impacts</p> <p>Prevent any waste from being used for an unauthorised purpose</p>
Socio-Economic	<p>Maximise employment opportunities and social benefits</p>

Aspect	Management objective
	Full compliance with the Broad-based Socio- Economic Empowerment Charter for the South African Mining Industry

A variety of potential impacts are associated with the construction, operational, and closure related activities for this project. These impacts can be categorised as general construction related impacts as well as construction impacts specifically related to this site. The construction phase is expected to last 12 months.

General best practice rules during construction activities should be followed at all times. In addition to this the specific mitigation measures and recommendations as highlighted by the Basic Assessment Report (BAR) and various specialist studies for this specific site are included.

**Table 5:2 Management measures to be implemented during the construction phase**

CONSTRUCTION PHASE								
Activity that may cause an impact	Environmental/ Social aspect	Potential Environmental Impact	Significance before mitigation	Significance after mitigation	Management Measure	Responsible Person	Frequency and/or time period	Method of monitoring
Construction of parking area and associated infrastructure	Soils	Loss of soils due to compaction and erosion.	Medium (-)	Low (-)	Strip topsoil in development footprint area and stockpile.	Construction contractor	Once off	EMPr performance assessment
					No vehicles may drive on topsoil stockpiles.	Construction contractor	Throughout construction	EMPr performance assessment
					Erosion protection measures must be put in place around topsoil stockpiles.	Construction contractor	Throughout construction	EMPr performance assessment
					Only proposed access roads to be used to reduce any unnecessary compaction.	Construction contractor	Throughout construction	EMPr performance assessment
					Compacted areas are to be ripped to loosen the soil structure where necessary during rehabilitation.	Construction contractor	Throughout construction	EMPr performance assessment
					A rehabilitation strategy focussed on re-vegetation must be initiated after the construction phase.	Environmental superintend	Upon completion of construction phase	EMPr performance assessment
Construction of parking area and associated infrastructure	Soils	Contamination of soils due to spillage of hydrocarbons or other hazardous material	Medium (-)	Low (-)	Prevent any spills from occurring. Machines must be parked within hard park areas or dedicated parking areas and must be checked daily for fluid leaks.	Construction contractor	Throughout construction	EMPr performance assessment
					Contractors must have spill kits available to address any unlikely spillages.	Construction contractor	Throughout construction	EMPr performance assessment
					Hydrocarbons (such as diesel) and other hazardous material must be stored within a bunded area.	Construction contractor	Throughout construction	EMPr performance assessment
					Contaminated soils must be disposed of at a licensed waste disposal facility.	Construction contractor	Throughout construction	EMPr performance assessment
Vegetation clearance, construction of parking area and associated infrastructure	Wetlands and surface water	Increased bare surfaces, surface water runoff and potential for erosion and resulting in increased sedimentation loads to the wetlands	Medium (-)	Low (-)	Parking area footprint must be demarcated and vegetation clearing limited to the demarcated area.	Construction contractor	Throughout construction	EMPr performance assessment
					It is critical to spread flows across the system, avoiding incisions in the landscape caused by concentrated flows. Temporary stormwater channels should be filled with aggregate and/or logs (branches included) to dissipate flows.	Construction contractor	Throughout construction	EMPr performance assessment
					It is recommended that the material surrounding and holding the culverts in place include a coarse rock layer that has been specifically incorporated to increase the porosity and permeability to accommodate flooding and very low flows.	Construction contractor	Throughout construction	EMPr performance assessment
					The culverts used in the design should be as large as possible, partially sunken and energy dissipating material must be placed at the discharge area of each culvert to prevent erosion of these areas. The use of larger culverts will prevent the build-up of debris by allowing the free movement of debris through the large culverts.	Construction contractor	Once off	EMPr performance assessment

CONSTRUCTION PHASE								
Activity that may cause an impact	Environmental/ Social aspect	Potential Environmental Impact	Significance before mitigation	Significance after mitigation	Management Measure	Responsible Person	Frequency and/or time period	Method of monitoring
					Surface run-off from the roads/parking area flowing down the embankments often scours the watercourse on the sides of the culvert causing sedimentation of the channel. This should be catered for with adequate concreted stormwater drainage depressions and channels with energy dissipaters that channel these flows into the river in a controlled manner.	Construction contractor	Throughout construction	EMPr performance assessment
					Signs of erosion must be addressed immediately to prevent further erosion.	Construction contractor	Throughout construction	EMPr performance assessment
					Implementation of a Stormwater Management Plan around the parking area.	Construction contractor/ Environmental superintendent	Throughout construction	EMPr performance assessment
Construction of parking area and associated infrastructure	Wetlands and surface water	Contamination of wetlands and surface water with hydrocarbons or other contaminants due to machinery leaks or other spillages.	Medium (-)	Low (-)	Storage of potential contaminants in bunded areas.	Construction contractor	Throughout construction	EMPr performance assessment
					All contractors must have spill kits available and be trained in the correct use thereof.	Construction contractor	Throughout construction	EMPr performance assessment
					All contractors and employees should undergo induction which is to include a component of environmental awareness. The induction is to include aspects such as the need to avoid littering, the reporting and cleaning of spills and leaks and general good "housekeeping".	Environmental superintendent	Throughout construction	EMPr performance assessment
					No cleaning or servicing of vehicles, machines and equipment in delineated wetlands and buffer zones.	Construction contractor	Throughout construction	EMPr performance assessment
					Adequate sanitary facilities and ablutions must be provided for all personnel throughout the project area. Chemical toilets may not be placed within 100m of any delineated wetlands.	Construction contractor	Throughout construction	EMPr performance assessment
					All waste generated on-site must be adequately managed and separated and recycled of different waste materials should be supported.	Construction contractor	Throughout construction	EMPr performance assessment
					All machinery and equipment should be inspected regularly for faults and possible leaks, these should be serviced off-site.	Construction contractor	Throughout construction	EMPr performance assessment
Construction of parking area and associated infrastructure	Biodiversity – Flora	Destruction of habitats, ecosystems and loss of CBA2.	Medium (-)	Low (-)	All planned activities should be realigned to prioritise development within the 'Very Low' to 'Low' sensitivity areas. It is recommended that areas to be developed/disturbed be specifically demarcated so that during the construction/activity phase, only the demarcated areas be impacted upon.	Environmental superintendent/ Construction contractor	Throughout construction	EMPr performance assessment
					The sensitive ridge area in the north-western corner of the project area is to be demarcated as a strict 'no-go' area. All construction related activities must avoid this area and a 50 m buffer is to be temporarily fenced off and maintained during the entire clearing and construction process. No staff are to be allowed access into this area.	Environmental superintendent/ Construction contractor	Throughout construction	EMPr performance assessment
					Any indigenous woody material that is removed during construction can be shredded and used in conjunction with the topsoil to augment soil moisture and prevent erosion. Large wooded stumps or branches may be used to enhance the local habitat features and encourage herpetofauna.	Construction contractor	Throughout construction	EMPr performance assessment
					Areas of dense and healthy indigenous vegetation, even secondary communities outside of the direct project footprint, should not be fragmented or disturbed further. This is particularly relevant to the Rock Outcrops and Drainage Line.	Construction contractor	Throughout construction	EMPr performance assessment



CONSTRUCTION PHASE								
Activity that may cause an impact	Environmental/ Social aspect	Potential Environmental Impact	Significance before mitigation	Significance after mitigation	Management Measure	Responsible Person	Frequency and/or time period	Method of monitoring
					All laydown, chemical toilets etc. should be restricted to 'Very Low' sensitivity areas. Any materials may not be stored for extended periods of time and must be removed from the project area once the construction/closure phase has been concluded.	Construction contractor	Throughout construction	EMPr performance assessment
					Areas that are denuded during construction that are not within the proposed footprint area need to be re-vegetated with indigenous vegetation to prevent erosion during flood events and strong winds and to support the adjacent habitat. This will also reduce the likelihood of encroachment by alien invasive plant species.	Construction contractor	Throughout construction	EMPr performance assessment
					It should be made an offence for any staff to take/bring any plant species into/out of any portion of the project area. No plant species whether indigenous or exotic should be brought into/taken from the project area, to prevent the spread of exotic or invasive species or the illegal collection of plants.	Environmental superintendent	Throughout construction	EMPr performance assessment
					Rocks removed during the construction phase may be used in areas where erosion control needs to be performed. Alternatively, they may be piled adjacent to rick areas beyond the park area to create useful habitat features for herpetofauna.	Construction contractor	Throughout construction	EMPr performance assessment
					All vehicles and personnel must make use of the existing roads and walking paths, especially construction/operational vehicles.	Construction contractor	Throughout construction	EMPr performance assessment
					Leaking equipment and vehicles must be repaired immediately or be removed from project area to facilitate repair.	Construction contractor	Throughout construction	EMPr performance assessment
					A hydrocarbon spill management plan must be put in place to ensure that should there be any chemical spill out or over that it does not run into the surrounding areas.	Construction contractor	Throughout construction	EMPr performance assessment
					A fire management plan needs to be compiled and implemented to restrict the impact that fire might have on remaining natural and newly rehabilitated areas. Natural areas remaining adjacent to the development footprint should be left to naturally regenerate, fire and cutting control methods are not to be used to clear areas containing natural indigenous vegetation. A firebreak surrounding the parking area is recommended.	Environmental superintendent	Throughout construction	EMPr performance assessment
Construction of parking area and associated infrastructure	Biodiversity – Flora	Spread and/or establishment of alien and/or invasive species	Medium (-)	Low (-)	The implementation of the Alien Invasive Plant management plan is very important, especially because of the invasive species identified on site which, if left unchecked, will continue to grow and spread prolifically leading to further and more significant deterioration to the health of the natural environment within the project area. The plan must especially pertain to any recently cleared and changed areas, this will include the edge effects created by the new parking area.	Environmental superintendent	Throughout construction	EMPr performance assessment
					The footprint area of the construction should be kept to a minimum. The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas. Road footprints must be kept to prescribed widths.	Construction contractor	Throughout construction	EMPr performance assessment
Construction of parking area and associated infrastructure	Biodiversity - Fauna	Displacement of faunal community due to habitat loss, direct mortalities and disturbance (road collisions, noise, dust, vibration and poaching).	Medium (-)	Low (-)	No trapping, killing, or poisoning of any wildlife is to be allowed. Signs must be put up to enforce this. These actions are illegal in terms of provincial environmental legislation.	Construction contractor	Throughout construction	EMPr performance assessment
					A qualified environmental control officer must be on site when clearing begins. The area must be walked though prior to construction to ensure that no faunal species remain in the habitat and get killed. Should animals not move out of the area on their own relevant specialists must be contacted to advise on how the species can be relocated.	Environmental superintendent	Throughout construction	EMPr performance assessment
					Any holes/deep excavations must be dug in a progressive manner in order to allow burrowing animals time to move off and to prevent trapping. Should the holes remain open overnight they must be covered temporarily to ensure no fauna species fall in.	Construction contractor	Throughout construction	EMPr performance assessment

CONSTRUCTION PHASE								
Activity that may cause an impact	Environmental/ Social aspect	Potential Environmental Impact	Significance before mitigation	Significance after mitigation	Management Measure	Responsible Person	Frequency and/or time period	Method of monitoring
					The proposed area to be developed must be disturbed by walking the area, prior to clearing of the area. This will allow fauna to move off from the area.	Construction contractor	Throughout construction	EMPr performance assessment
					The areas to be developed (or activity areas) must be specifically demarcated to prevent the movement of staff or equipment/vehicles into the surrounding environments. Signs must be put up to enforce this.	Construction contractor	Throughout construction	EMPr performance assessment
					The duration of the construction should be minimized to as short a term as possible, to reduce the period of disturbance on fauna.	Construction contractor	Throughout construction	EMPr performance assessment
					Outside lighting should be designed and limited to minimize impacts on fauna. Fluorescent and mercury vapor lighting should be avoided, and sodium vapor (yellow) lights should be used wherever possible.	Construction contractor	Throughout construction	EMPr performance assessment
					All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limits, to respect all forms of wildlife. Speed limits must be enforced to ensure that road killings and erosion is limited. Speed bumps should be built to force slow speeds.	Construction contractor	Throughout construction	EMPr performance assessment
					Noise must be kept to a minimum during the evenings/ at night to minimize all possible disturbances to amphibian species and nocturnal mammals.	Construction contractor	Throughout construction	EMPr performance assessment
					Signs must be put up in order to show the importance and sensitivity of surrounding areas and their functions. This especially pertains to the ridge and wetland areas.	Construction contractor	Throughout construction	EMPr performance assessment
Construction of parking area and associated infrastructure	Biodiversity - Fauna	Introduction of nuisance vectors (pests) such as rodents and baboons	Low (-)	Low (-)	Waste management must be a priority and all waste must be collected and stored adequately. It is recommended that all waste be removed from site on a weekly basis to prevent rodents and pests entering the site. • Refuse bins must be emptied and secured; • Temporary storage of domestic waste shall be in covered waste skips; and • Maximum domestic waste storage period must be 10 days.	Construction contractor	Throughout construction	EMPr performance assessment
					Any litter, spills, fuels, chemical and human waste in and around the project area must be removed and disposed of timeously and responsibly. It must be made an offence to litter or dump any material outside of specially demarcated and managed zones. Signs and protocols must be established to explain and enforce this.	Construction contractor	Throughout construction	EMPr performance assessment
					A minimum of one toilet must be provided per 10 persons. Portable toilets must be regularly pumped dry to ensure that the system does not degrade over time and spill into the surrounding area.	Construction contractor	Throughout construction	EMPr performance assessment
					The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected shall be disposed of at a licensed disposal facility.	Construction contractor	Throughout construction	EMPr performance assessment
					Where a registered disposal facility is not available close to the project area, the Contractor/property owner shall provide a method statement with regards to waste management. Under no circumstances may domestic waste be burned on site. Waste may never be stored in an open pit where it is susceptible to the elements such as wind and rain.	Construction contractor	Throughout construction	EMPr performance assessment
Construction of parking area and associated infrastructure	Heritage	Destruction, damage, alteration or removal of the original position of archaeological and paleontological material or objects	Medium (-)	Low (-)	The cemetery must be indicated on development plans, with a 50m buffer zone.	Construction contractor	Throughout construction	EMPr performance assessment
					The cemetery should be considered a no-go area. No development is allowed to take place within the cemetery or buffer zone.	Construction contractor	Throughout construction	EMPr performance assessment

CONSTRUCTION PHASE								
Activity that may cause an impact	Environmental/ Social aspect	Potential Environmental Impact	Significance before mitigation	Significance after mitigation	Management Measure	Responsible Person	Frequency and/or time period	Method of monitoring
					Demarcate the cemetery and 50m buffer zone as a no-go area with danger tape or similar product, prior to the commencement of the development. Should a grave or other archaeological artefact be uncovered during the construction phase, implement the chance find procedure.	Construction contractor	Throughout construction	EMPr performance assessment
Construction of parking area and associated infrastructure	Noise	General rise in ambient noise levels	Medium (-)	Low (-)	Construction only take place during daylight hours.	Construction contractor	Throughout construction	EMPr performance assessment
					A complaints register must be available at the construction site office. Complaints must be attended to immediately and a close out report to be filed.	Construction contractor	Throughout construction	EMPr performance assessment
Construction of parking area and associated infrastructure	Air Quality	Increased dust fallout	Low (-)	Low (-)	Develop and implement a dust monitoring programme for the construction phase of the project.	Environmental superintendent	Throughout construction	EMPr performance assessment
					Dust-reducing mitigation measures must be put in place and must be strictly adhered to, particularly for all dirt roads and any earth dumps. This includes the wetting of exposed soft soil surfaces and not conducting activities on windy days which will increase the likelihood of dust being generated. Only environmentally friendly suppressants may be used to avoid the pollution of water sources.	Construction contractor	Throughout construction	EMPr performance assessment
					Set speed limits to 40 km/h to minimise the creation of fugitive dust within the project boundary. Speed bumps should also be constructed, if required.	Construction contractor	Throughout construction	EMPr performance assessment
Construction of parking area and associated infrastructure	Social	Benefits resulting from employment and income opportunities created by the construction of the parking area	Low (+)	Medium (+)	Develop a clear and concise employment policy prioritising local employment.	Environmental superintendent	Once off	EMPr performance assessment
					Employ local works if qualified applicants with the appropriate skills are available.	Construction contractor	Throughout construction	EMPr performance assessment
					Purchase goods and services at a local level if available.	Construction contractor	Throughout construction	EMPr performance assessment
Construction of parking area and associated infrastructure	Social	Influx of people and construction workers leading to increased pressure on social services and infrastructure	Low (-)	Low (-)	Develop a clear and concise employment and recruitment policy that prioritizes local recruitment. Ensure that contractors adhere to this policy.	Construction contractor	Throughout construction	EMPr performance assessment
					Identify and support community development programmes that address challenges raised by population influx and spontaneous settlement.	Environmental superintendent	Throughout construction	EMPr performance assessment
					Support local government capacity for integrated development planning. Prepare a detailed vocational training program in consultation with the local community to be implemented during the construction phase.	Construction contractor	Throughout construction	EMPr performance assessment
					Through the stakeholder engagement process ensure that expectations are managed around employment opportunities and practice.	Environmental superintendent	Throughout construction	EMPr performance assessment

**Table 5:3 Management measures to be implemented during the operational phase**

OPERATIONAL PHASE								
Activity that may cause an impact	Environmental/ Social aspect	Potential Environmental Impact	Significance before mitigation	Significance after mitigation	Management Measure	Responsible Person	Frequency and/or time period	Method of monitoring
Operation of parking area	Surface water and wetlands	Contamination of wetlands and surface water with hydrocarbons or other contaminants due to machinery leaks or other spillages.	Medium	Low (-)	Maintenance of vehicles should not be permitted within the parking area.	Environmental superintendent	Throughout operational phase	EMPr performance assessment
Operation of parking area	Surface water and wetlands	Increased surface water run-of into wetlands and watercourses	Low (-)	Low (-)	Implementation of a Stormwater Management Plan for surface water run-off.	Environmental superintendent	Throughout operational phase	
					Surface run-off from the roads/parking area flowing down the embankments often scours the watercourse on the sides of the culvert causing sedimentation of the channel. This should be catered for with adequate concreted stormwater drainage depressions and channels with energy dissipaters that channel these flows into the river in a controlled manner.	Environmental superintendent	Throughout operational phase	

**Table 5:4 Management measures to be implemented during the closure phase**

CLOSURE PHASE					
Activity that may cause an impact	Environmental/ Social aspect	Potential Environmental Impact	Significance before mitigation	Significance after mitigation	Management Measure
Demolishing of parking area and access road	Soils	Loss of soils due to compaction and erosion.	Low (-)	Low (-)	Compacted areas are to be ripped to loosen the soil structure where necessary during rehabilitation.
					A rehabilitation strategy focussed on re-vegetation must be initiated during the closure phase.
Demolishing of parking area and access road	Soils	Contamination of soils due to spillage of hydrocarbons or other hazardous material	Low (-)	Low (-)	Prevent any spills from occurring. Machines must be parked within hard park areas or dedicated parking areas and must be checked daily for fluid leaks.
					Contractors must have spill kits available to address any unlikely spillages.
					Hydrocarbons (such as diesel) and other hazardous material must be stored within a bunded area.
					Contaminated soils must be disposed of at a licensed waste disposal facility.
Demolishing of parking area and access road	Wetlands and surface water	Increased bare surfaces, surface water runoff and potential for erosion and resulting in increased sedimentation loads to the wetlands	Low (-)	Low (-)	It is critical to spread flows across the system, avoiding incisions in the landscape caused by concentrated flows. Temporary stormwater channels should be filled with aggregate and/or logs (branches included) to dissipate flows.
					Signs of erosion must be addressed immediately to prevent further erosion.
					Implementation of a Stormwater Management Plan around the parking area.
Demolishing of parking area and access road	Wetlands and surface water	Contamination of wetlands and surface water with hydrocarbons or other contaminants due to machinery leaks or other spillages.	Low (-)	Low (-)	Storage of potential contaminants in bunded areas.
					Spill kits must be available to clean hydrocarbon spillages immediately.
					No cleaning or servicing of vehicles, machines and equipment in delineated wetlands and buffer zones.
					Adequate sanitary facilities and ablutions must be provided for all personnel throughout the project area. Chemical toilets may not be placed within 100m of any delineated wetlands.

CLOSURE PHASE					
Activity that may cause an impact	Environmental/ Social aspect	Potential Environmental Impact	Significance before mitigation	Significance after mitigation	Management Measure
					<p>All waste generated on-site must be adequately managed and separated and recycled of different waste materials should be supported.</p> <p>All machinery and equipment should be inspected regularly for faults and possible leaks, these should be serviced off-site.</p>
Demolishing of parking area and access road	Biodiversity	Re-vegetation of the disturbed area	Low (-)	Low (-)	<p>Before seeding, any topsoil and mulched vegetation should be spread across the bare soil areas to a depth of between 50 mm and 100 mm.</p> <p>Implementation of a rehabilitation plan for the area, focussing on re-vegetation.</p>
Demolishing of parking area and access road	Biodiversity	Spread and/or establishment of alien and/or invasive species	Low (-)	Low (-)	The implementation of the Alien Invasive Plant management plan is very important, especially because of the invasive species identified on site which, if left unchecked, will continue to grow and spread prolifically leading to further and more significant deterioration to the health of the natural environment within the project area. The plan must especially pertain to any recently cleared and changed areas, this will include the edge effects created by the new parking area.
Demolishing of parking area and access road	Noise	General rise in ambient noise levels	Low (-)	Low (-)	<p>Demolition activities only take place during daylight hours.</p> <p>A complaints register must be available at the Shaft office. Complaints must be attended to immediately and a close out report to be filed.</p>
Demolishing of parking area and access road	Dust fallout	Increased dust fallout	Low (-)	Low (-)	<p>Develop and implement a dust monitoring programme for the operational phase of the project.</p> <p>Dust-reducing mitigation measures must be put in place and must be strictly adhered to, particularly for all dirt roads and any earth dumps. This includes the wetting of exposed soft soil surfaces and not conducting activities on windy days which will increase the likelihood of dust being generated. Only environmentally friendly suppressants may be used to avoid the pollution of water sources.</p> <p>Set speed limits to 40 km/h to minimise the creation of fugitive dust within the project boundary. Speed bumps should also be constructed, if required.</p>

## **6 MANAGEMENT PLANS**

The following management plans are detailed in the sections below:

- Heritage chance find procedure;
- Paleontological chance find procedure;
- Laydown area;
- Waste management plan;
- Hydrocarbon spill management plan;
- Alien Invasive Plant Management Plan;
- Stormwater management plan; and
- Rehabilitation plan.

### **6.1 Heritage chance find procedure**

The possibility of the occurrence of subsurface finds cannot be excluded. Therefore, if during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped, and a qualified archaeologist must be contacted for an assessment of the find and therefore chance find procedures should be put in place as part of the EMP. A short summary of chance find procedures is discussed below.

This procedure applies to the developer's permanent employees, its subsidiaries, contractors and subcontractors, and service providers. The aim of this procedure is to establish monitoring and reporting procedures to ensure compliance with this policy and its associated procedures. Construction crews must be properly inducted to ensure they are fully aware of the procedures regarding chance finds as discussed below.

- If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area.
- The senior on-site Manager will inform the Environmental Superintendent of the chance find and its immediate impact on operations. The Environmental Superintendent will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA.

### **6.2 Laydown area**

The following management measures will be implemented at the construction camp/laydown area:

- Demarcate the construction camp/laydown area.
- Adequate portable ablution facilities for construction crews will be provided by the Construction Contractor and will be located at least 30m from the edge any delineated wetlands.
- All vehicles must make use of the existing roads.
- No uncontrolled discharges from the construction camp shall be permitted.
- Correct storage, handling and operation of the waste handling, management and storage area and laydown areas.



## 6.3 Waste Management Plan

Waste management will be undertaken as per Sibanye-Stillwater's Environmental PGM Operations Procedure for Waster Management.

The following procedures will be applicable (Sibanye-Stillwater, 2021):

### 6.3.1 Waste bins and Storage areas

#### 6.3.1.1 Waste bins (wheelie/waste drums)/bags (Waste generation areas)

The waste sorting and management of waste streams remains the responsibility and accountability of the waste generator. Waste generators shall comply with the following requirements:

- a) Waste shall be placed into an appropriately labelled waste bin / container to promote adequate sorting, to allow for improved reusing, recycling, treatment or disposal of waste. Labelling must be indicated by a sign or a sticker, as per the standard
- b) Damaged drums and wheelie bins shall be replaced.
- c) All lidded hazardous waste containers shall remain closed (when not being loaded with waste) or if unlidded placed under a roofed area (where rain water cannot enter).
- d) Hazardous waste containers shall be placed on cemented areas.
- e) Hazardous waste containers shall be stored in an adequately ventilated area.

#### 6.3.1.2 Permanent Skips

- Standardized signs shall be displayed and will be visible.
- All waste shall be sorted correctly according to the waste signage displayed.
- General waste skips shall be placed on a cemented slab.
- Hazardous waste skips shall be placed into a concreted area fitted with a bund wall OR fitted with a trench system that reports to an oil separator/sump/spillage pump which is designed to contain any spillage.
- The bunded and concreted areas where waste is sorted and stored must be impermeable and in good condition.
- Hazardous waste skip lids shall remain closed when not in use or shall be placed under a roof where rainwater cannot enter.
- "No smoking" signage shall be displayed at all central waste skip bays.
- Skips received from the waste service provider shall be clean and free of debris or old waste.
- No burning of waste is allowed.
- Waste that is spilled or blown by wind during handling or storage shall be contained.
- Equipment containing chemicals / hydrocarbons are to be drained and / or washed before they are disposed of in the relevant waste skip / container or if equipment is contaminated with chemicals / hydrocarbons. If there is no facility to wash this equipment, it is to be disposed of in the relevant hazardous waste skip.
- Waste containers shall not overflow.
- Housekeeping around all waste areas shall be kept up to standard. All mixed waste sorting areas shall be cemented. Waste dumping and sorting on soil is not permitted.
- Waste containers containing general recyclable waste shall be equipped with lids to prevent any water from entering the container and compromising the recyclable potential of the waste
- Records are kept by means of the following documentation where applicable: waste manifest documents; delivery notes, waybills, waste inventory, service provider monthly report, environmental officer monthly summary, weighbridge slips etc.



#### **6.3.1.3 Temporary Waste Skips (less than 3 months only)**

- Temporary waste skips (general waste only) may be placed on soil, provided that the skip is in good condition.
- Disposal of hazardous waste for a temporary project shall take place at the nearest suitable hazardous waste storage area. Hazardous waste generated during a temporary project / activity shall be disposed into suitable hazardous waste containers for temporary storage until such time that disposal to the generator's hazardous waste storage area is possible.
- Waste skips placed for temporary storage may not overflow.
- Housekeeping around skips to be kept up to standard.

#### **6.3.1.4 Handling of waste**

- Waste shall initially be separated at source where practicable and then transported to a central or demarcated area for waste sorting.
- Building rubble shall not be mixed with other waste to ensure proper sorting.
- Sibanye-Stillwater must ensure that all employees and contractors receive proper training on waste management.
- Waste collected from each site must be taken to Central Salvage for further sorting and recovery of waste, or disposed to landfill if there is no need for extra sorting.

#### **6.3.1.5 Building and demolition waste**

- Building waste must be stored separately from all other waste types.
- Building waste may be temporarily stored on soil in designated areas, provided that there is no contamination or other wastes stored with the building waste. The number of designated areas for temporary storage of building waste must be limited per area i.e. 1 heap per area or project.
- The land or premises on which building waste is generated may not become unsightly or a source of nuisance as a result of accumulation of building waste or dust.
- Building waste shall be disposed of at a permitted/licensed landfill site, or sent for repurposing for crushing material and/or as per Rehabilitation Protocol. Local by-laws will need to be sighted regarding the management of this waste stream.

#### **6.3.1.6 Garden refuse (general waste)**

- Garden refuse shall be removed within a reasonable timeframe after the generation thereof, which is before it starts to decay, become a nuisance or fire hazard.
- Garden refuse should be sent for composting to a designated site, where applicable.
- Categorised Alien and Invasive plant and tree species shall not be sent to the composting facilities, but shall be managed as per the Alien Vegetation Removal Procedure
- Category 1 Alien and Invasive plants and trees shall not be sent to the composting plant but shall be sent to landfill for immediate disposal.
- The burning of garden refuse shall not be permitted.
- Transportation of waste
- The transportation of waste shall be handled by the appointed waste contractor.
- The waste contractor responsible for hazardous waste transportation shall be certified as a Hazardous Waste Transporter and shall comply to the applicable legislation (Waste Act, associated Regulations, GWIS Regulations, Municipal By-Laws, National Road Traffic Act, and SANS 10228/10234, etc.).
- Waybills and delivery notes must be issued to all business units where waste has been collected for hazardous, general and recycled waste.

- Hazardous waste removed from site for reuse/recovery, recycling, treatment and disposal shall be accompanied by a Hazardous Waste Manifest, signed by the waste collector and generator. Each load requires its own waste manifest.
- All vehicles removing hazardous waste from site shall have a copy of the Safety Data Sheet (SDS) for the waste being transported.
- Any waste that is accidentally spilled during transportation must be retrieved or cleaned up promptly by the contractor.
- Hazardous and Health Care Risk Waste may only be transported in accordance with the requirements of the Municipality (type of vehicle, markings, safety procedures, hygiene, and documentation) as well as the applicable legislation.
- No person will operate as a waste removal contractor unless written authority has been obtained from the Municipality.

#### **6.4 Hydrocarbon Spill Management Plan**

- The Contractor shall be in possession of an emergency spill kit that must always be complete and available on site.
- Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use.
- No servicing of equipment is to take place on site unless necessary.
- All contaminated soil shall be treated in situ or removed and be placed in containers.
- It is important to appropriately contain any diesel storage tanks and/or machinery spills (e.g., accidental spills of hydrocarbons, oils, diesel etc.) in such a way as to prevent them leaking and entering the environment.

#### **6.5 Alien Invasive Plant Management Plan**

The development and implementation of an Alien Invasive Plant Management Plan is important because construction activities promote the spread and growth of Alien Invasive Plant Management Plan through the extensive artificial disturbance of the topsoil layer. AIPs tend to dominate or replace indigenous flora, thereby transforming the structure, composition and functioning of healthy ecosystems. Some invader plants may also degrade ecosystems through superior competitive capabilities which exclude native plant species. Therefore, it is important that these plants are controlled through the enforcement of an eradication and monitoring programme before they are able to proliferate throughout the area and spread to nearby sensitive environmental features.

The Alien Invasive Plant Management Plan is available in Annexure B.

#### **6.6 Stormwater Management Plan**

A Stormwater Management Plan was developed by Hydrological Environmental Engineering Solutions (HEES). The principle of clean-dirty water separation formed the basis of design and the Rational Method for peak floods and flood level determination. Conceptual designs for diversion trenches, kerbs channels and culverts are shown in the report.

The following conclusions were made:

- Flat V-drains are required inside the parking lot to divert the clean water away from the parking area and into the surrounding clean water catchment area.
- Kerb channels are required on both sides of the roads and on the higher side of the traffic circles. This will allow run-off to collect and flow into the clean water trenches. It will also prevent excess rain run-off from the area above to flow over the road.

- Where triangular or V-shaped channels intersect, and the water volumes are great, trapezoidal trenches are proposed. A suitable downwards slope will be applied to the trapezoidal trenches to allow a smooth transition into the box culverts.
- Box culverts will be incorporated to allow the clean water to cross the roads.

The stormwater management plan is available in Annexure C.

## **6.7 Rehabilitation plan**

It is vital to ensure that natural areas are correctly and sufficiently rehabilitated to re-establish proper ecosystem functioning. Rehabilitation measures are however generally costly and thus there needs to be financial assurance that these costs will be met, at the risk of harming the ecosystem more than supporting it.

The revegetation process that forms part of the larger rehabilitation method not only attempts to restore the natural ecosystem processes of the affected area, but also aims to impede the encroachment of Alien Invasive Plants (AIPs) and prevent erosion. The following general guidelines are recommended with regards to this process:

- The affected area must be re-shaped to a suitable topography and covered with a suitable naturally nutrient rich locally sourced topsoil material;
- Plants that are well-adapted to the prevailing local climatic conditions must be used. This essentially dictates that only locally indigenous species are to be used;
- Perennial species (plants that continue to grow each spring) must form the main component of the revegetation programme. Annual species (plants that only survive one growing season) do have a role, but only in providing rapid temporary cover in the initial stage of revegetation, or as a component within mixtures containing perennials;
- Good quality and locally sourced planting material and seed must be readily available with an assured source of supply; and
- A combined approach to revegetation, i.e., both seed sowing and direct planting, is the best strategy to achieve the intended results of a suitable plant density and diversity.

The rehabilitation plan is available in Annexure D.

## 7 ENVIRONMENTAL MONITORING

Environmental monitoring is already taking place around the K4 Shaft as part of the Sibanye-Stillwater Marikana Operations. This includes the monitoring of surface water, groundwater, biomonitoring and dust fallout. The monitoring objectives are outlined in Table 7:1.

Environmental monitoring is conducted at Marikana Mine for the following reasons (SEF, 2012):

- Generate baseline/background data/information to set and update mine-wide environmental conditions;
- Identify possible contaminant sources and their extent (typically groundwater contaminant plumes), especially if these have the potential to migrate outside defined mining related areas;
- Calibrate and verify prediction and assessment numerical models to assist with the quantification of possible contaminant migration and off-site progression;
- Assess the success, functionality and sustainability of the implemented environmental related management measures;
- Assess regulatory compliance with standards, permits and/or licence conditions; and
- Determine any possible adverse impact on receiving environment.

**Table 7:1 Monitoring objectives**

Aspect	Objective
Surface and groundwater quality Biomonitoring	<ul style="list-style-type: none"> <li>• Comply with the requirements as set out in the Water Use License;</li> <li>• Comply with Marikana's Safety and Sustainability standards, EMPr and Environmental policy;</li> <li>• Classify the Present Ecological State (PES) of strategically chosen sites;</li> <li>• Identify the impacts on the aquatic environment;</li> <li>• Identify management solutions required in order to improve the quality of the aquatic ecosystems in the region of the Sibanye-Stillwater Marikana operations.</li> </ul>
Air Quality	<ul style="list-style-type: none"> <li>• Assessment of compliance with ambient air quality guidelines and standards within the main impact zone of the operation</li> <li>• Facilitate the measurement of progress against environmental targets within the main impact zone of the operation;</li> <li>• Temporal trend analysis to determine whether improvements or deterioration of ambient air is occurring within the main impact zone of the operation;</li> <li>• Tracking of progress due to pollution control measure implementation within the main impact zone of the operation</li> <li>• Facilitate source contribution quantification within the main impact zone of the operation</li> </ul>

Details on all monitoring points are provided in the sections to follow. An overall environmental monitoring map is provided in Figure 7:1, indicating current environmental monitoring points in relation to the K4 Shaft.

### 7.1.1 Surface water

Table 7:2 provides details on the surface water points for Marikana Mine relevant to the K4 Shaft.

**Table 7:2 Marikana Mine surface water sampling points relevant to K4 Shaft**

Site name	Description	Latitude	Longitude	Parameters	Frequency
KM S 07a	Downstream Sterkstroom before Confluence	25°39'25.60"S	27°28'14.63"E	pH, Electrical Conductivity (EC),	Monthly

Site name	Description	Latitude	Longitude	Parameters	Frequency
KM S 08	Sterkstroom Downstream on bridge at dirt road	25°39'24.37"S	27°28'16.28"E	TDS, total alkalinity, total hardness, Ca, Mg, Na, K, Cl, SO <sub>4</sub> , F, NO <sub>3</sub> , NO <sub>2</sub> , TON, NH <sub>4</sub> , NH <sub>3</sub> , PO <sub>4</sub> , Al, Fe, Cd, Co, Cr, Cu, Ni, Mn, Pb, Se, Hg, SAR, SS and Zn.	
KM S 09	Downstream Brakspruit (at BH 3) - Before confluence with Hoedspruit	25°39'37.01"S	27°28'4.69"E		
KM S 20	River Diversion Spillway	25°40'43.68"S	27°27'43.16"E		
KM S 21	Brakspruit Downstream of RWD (at BH 22)	25°40'6.89"S	27°28'4.08"E		

### 7.1.2 Groundwater

Table 7:3 provides details on the groundwater monitoring points for Marikana Mine relevant to the K4 Shaft.

**Table 7:3 Marikana Mine groundwater monitoring points relevant to K4 Shaft**

Site name	Description	Latitude	Longitude	Parameters	Frequency
KM BH 29	K 4 Shaft RWD - Deep Borehole	25°39'55.80"S	27°28'8.69"E	pH, Electrical Conductivity (EC), TDS, total alkalinity, total hardness, Ca, Mg, Na, K, Cl, SO <sub>4</sub> , F, NO <sub>3</sub> , NO <sub>2</sub> , TON, NH <sub>4</sub> , NH <sub>3</sub> , PO <sub>4</sub> , Al, Fe, Cd, Co, Cr, Cu, Ni, Mn, Pb, Se, Hg, SAR and Zn. Water levels	Quarterly
KM BH 33	Downstream of K4 Concentrator	25°40'36.01"S	27°28'3.86"E		

### 7.1.3 Biomonitoring

Table 7:4 Marikana Mine biomonitoring points relevant to K4 Shaft  
Table 7:4 provides details on the biomonitoring points for Marikana Mine relevant to the K4 Shaft.

**Table 7:4 Marikana Mine biomonitoring points relevant to K4 Shaft**

Site name	Description	Latitude	Longitude	Protocol	Frequency
S-B2	Brakspruit, downstream of the diversion around the Karee tailings facilities. The tailings and RWD complex impacts are also reflected by this site.	25°40'1.20"S	27°27'51.48"E	SASS5	Bi-annually if not dry
				FAIL	None
				Toxicity testing	Bi-annually if not dry
SH-1	Monitoring site on the Hoedspruit tributary, being located downstream of potential impacts derived from Sibanye (Karee mine tailings) activities. This stream is additionally impacted by non-Sibanye tailings facilities upstream of this sampling site.	25°39'37.44"S	27°27'51.48"E	SASS5	Biannually, if flowing
				FAIL	None
SB3	Most downstream site in the Sterkstroom River, downstream of the confluence with the Hoedspruit and Brakspruit tributaries. This site measures all potential cumulative impacts within the sub-catchment	25°39'23.76"S	27°28'16.32"E	SASS5	Bi-annually, if flowing
				FAIL	None
				Toxicity testing	Biannually if not dry

Site name	Description	Latitude	Longitude	Protocol	Frequency
S-S3	Sterkstroom, downstream of Marikana Township but upstream of the confluence between the Sterkstroom, Hoedspruit and Brakspruit rivers.	25°39'53.64"S	27°28'33.24"E	SASS5	Bi-annually, if flowing
				FAI	None
				Toxicity testing	Biannually if not dry

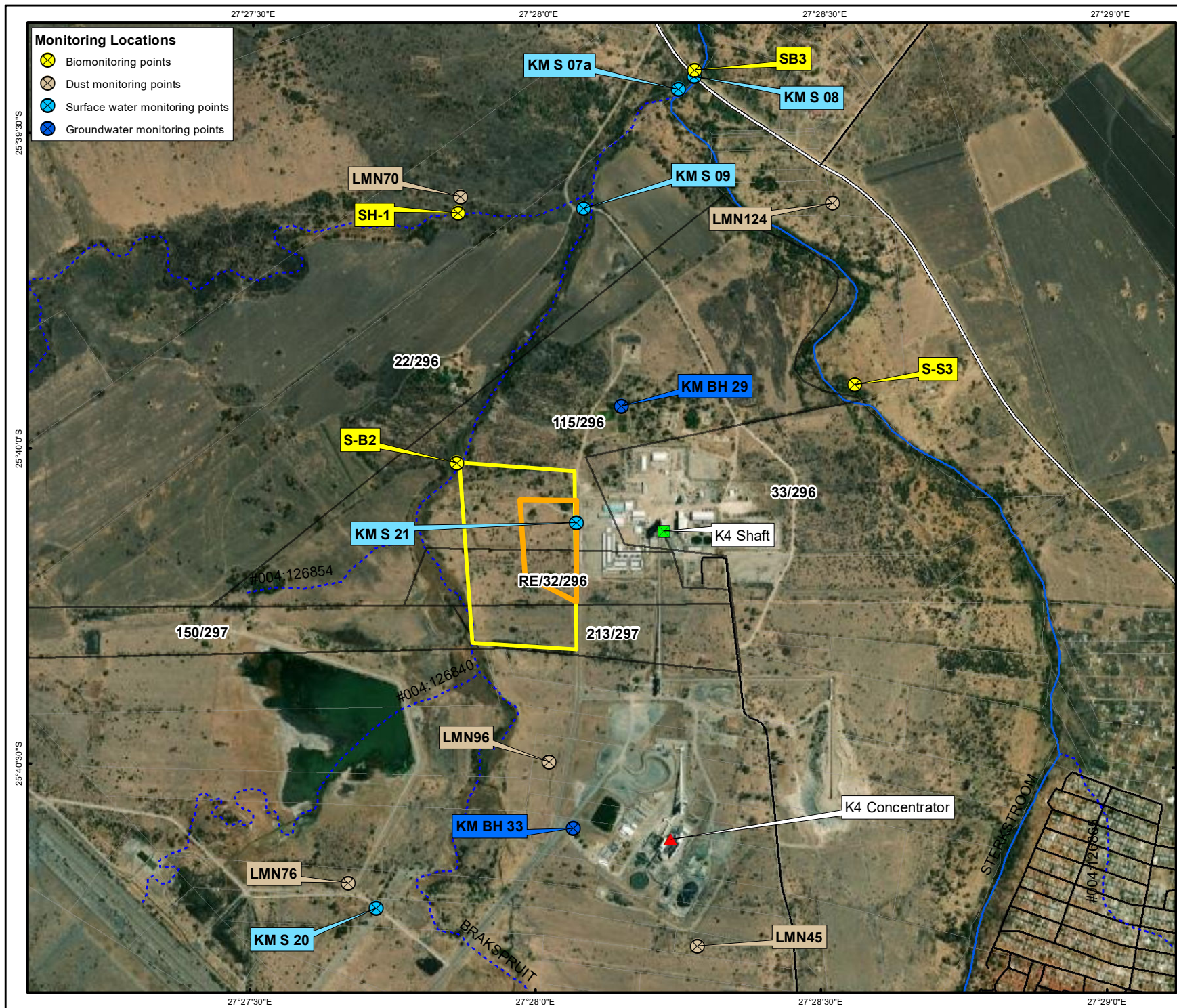
#### 7.1.4 Air quality

Table 7:5 provides details on the air quality monitoring points for Marikana Mine relevant to the K4 Shaft.

**Table 7:5 Marikana Mine air quality monitoring points relevant to K4 Shaft**

ID	Description	Coordinates		Parameter
		Latitude	Longitude	
LMN45	K4 Concentrator	25°40'47.14"S	27°28'16.93"E	Dust fallout
LMN70	TD4 South	25°39'35.89"S	27°27'51.77"E	Dust fallout
LMN76	Karee TD 1-2-3 East	25°40'41.23"S	27°27'40.18"E	Dust fallout
LMN96	K4 Weighbridge	25°40'29.68"S	27°28'1.27"E	Dust fallout
LMN124	North-Marikana Dirt Road	25°39'36.43"S	27°28'30.83"E	Dust fallout





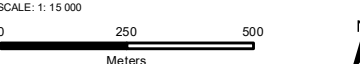
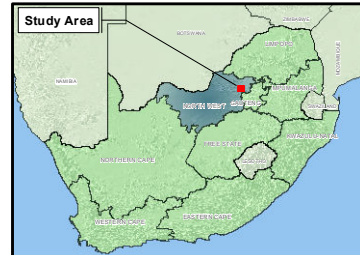
# Legend

- Study area
- Proposed Parking Area
- ▲ K4 Concentrator
- K4 Shaft

- Tertiary Road
- Street/Road
- Railway
- Perennial River
- Non-Perennial River

## Intersecting Farm Portions

- Intersecting Farm Portions
- Other Farm Portions



TITLE:

Figure 7:1 Current Marikana Mine environmental monitoring points relevant to K4 Shaft

CLIENT:

## Sibanye-Stillwater

DATE: June 2022	PROJECT: K4_SHAFT_PA
DRAWN: THURLOW MAPPING	APPROVED: KP
MAP: MON_POINTS_K4_SHAFT_PA_REV1.mxd	REV: 0

Alta van Dyk Environmental Consultants cc (2011/059764/23)

VAT No: 4630259952

Tel: 012 940 9457

Fax: 086 634 3967

Cell: 082 782 4005



Projection: Transverse Mercator CM: 27 Datum: WGS 84

Source: Chief Directorate National Geo-Spatial Information, ESRI World Imagery Layer - 2021

Inset: ESRI Data and Maps

SIZE: A4



## 8 ENVIRONMENTAL AWARENESS PLAN

Information for the Environmental Awareness Plan was obtained from Western Platinum Mine's Final Environmental Impact Assessment and Environmental Management Programme (SEF, 2012).

Sibanye-Stillwater is committed to identifying training needs and ensuring that all personnel whose work may create a significant impact upon the environment receive appropriate training. The Environmental Awareness Plan describes the training available and the manner in which environmental training needs are identified and continually reassessed. With all Business Units being ISO14001 certified, environmental awareness training as well as competency training is required.

### 8.1 Objectives

The objectives of the Environmental Awareness Plan are to ensure that:

- Training needs are identified and all personnel whose work may create a significant impact upon the environment have received appropriate training.
- Procedures are established and maintained to make employees aware of:
  - The importance of conformance with Sibanye-Stillwater's environmental standards and procedures and the requirements of the Environmental Management System (EMS);
  - The significant environmental impacts, actual or potential, of their work activities and environmental benefits of improved personal performance;
  - Their roles and responsibilities in achieving conformance with environmental policy and procedures; and
  - The potential consequences of departure from specified operating procedures.
- Personnel performing tasks, which can cause significant environmental impacts, are competent in terms of appropriate education, training and/ or experience.

### 8.2 Responsibilities

The responsibilities in terms of environmental awareness training lies with Sibanye-Stillwater Environmental Centre, Sibanye-Stillwater Academy and Individual Business Units as described in Table 8:1 below:

**Table 8:1 Environmental awareness training responsibilities**

Sibanye-Stillwater Environmental Centre	Sibanye-Stillwater Academy	Individual Business Unites
Guidance on training needs analysis and materials	General environmental awareness training	General environmental awareness training (Formal and informal). Requirement of the ISO 14001 standard
Assist with specialised training	Components of specialised environmental training	Training needs analysis
Contract specialists for specialist environmental legal training	Maintain Training records	Environmental Legal Training

### 8.3 Identification of training needs

The identification of environmental training and development needs is derived from the analysis of role descriptions. The role description is used to confirm the category of occupation as per WPL structure templates. Descriptions of activities, aspects and impacts are sourced from the EMS database. The EMS database provides descriptions of environmental aspects and impacts per section/department. Derived from this information, a



training and development needs matrix was compiled displaying the EMS responsibility/role, required knowledge and outputs, intervention required and interval of intervention.

The following general and specific training needs have been identified at WPL:

- General training
  - Environmental awareness training;
  - Awareness of the Sibanye-Stillwater Safety and Sustainability policy;
  - Awareness of environmental legislation; and
  - Related Sibanye-Stillwater environmental requirements.
- Specific training
  - Awareness of significant environmental aspects associated with work activities;
  - Awareness of environmentally related operational procedures applicable to work activities;
  - Awareness of the potential consequences of not following environmentally related operational procedures; and
  - Environmental legislative requirements of work activities.

## 8.4 Available training

Training across Sibanye-Stillwater on general takes the form of general environmental awareness, environmental talk topics, task specific environmental training, training regarding software and specific aspects of the ISO 14001 environmental management systems and training on legislative requirements.

- **General environmental awareness** is undertaken as part of induction on an annual basis, including all contractors who work at Sibanye-Stillwater for longer than one week on site. Induction training includes the Safety and Sustainability policy, standards, charters and visions as well as an introduction to ISO 14001. There is an emphasis on the description of environmental impacts, namely air pollution, waste management, water management, land management and energy conservation, the importance of environmental legislation, key roles and responsibilities in terms of environmental management and the reporting of non-conformances.
- **Task specific Safety and Sustainability training** has been developed for the operational areas based on the significant environmental aspects/impacts. The training program includes on the job training with applicable personnel and encompasses the following training topics:
  - Waste prevention and control;
  - Waste sorting and handling;
  - Resource consumption;
  - Storing and handling of petroleum hydrocarbons;
  - Storing and handling of chemicals;
  - Rehabilitation/housekeeping; and
  - Spills prevention/clean up.
- **Legal training** provides senior, middle and key environmental management personnel with information on environmental legal requirements. Consultants or environmental advocates may present and conduct this training.
- **ISO 14001 training** entails training on all software utilised in the system and training required to successfully undertake internal and external audits.

## 8.5 Review of training material

Relevant Business units will update the training needs analysis and the training material on an annual basis as a minimum frequency as part of the ISO 14001 requirements. Sibanye-Stillwater Environmental Centre will provide an assistance and review role as and when required. The information utilised for the annual reassessment of environmental training needs and material includes:

- Updated aspect registers;
- Updated environmental management programs;
- Updated lists of procedures (EMS and operational);
- Feedback from audits (internally and externally);
- Feedback on trends in environmental non-conformance and incidents; and
- Feedback from Safety and Sustainability and Zero Tolerance inspections.

## **9 COMPLIANCE WITH THE EMPR**

The implementation of the management measures specified in Table 5:2, Table 5:3 and Table 5:4 will be monitored as detailed in the following sections.

### **9.1 Site inspections**

During the construction phase, the construction contractor must appoint a suitable qualified person to undertake visual site inspections supported by photographic evidence. The frequency of these visual site inspections must be monthly. The visual inspection findings must be collated into a monthly compliance report to account on the compliance of the construction phase mitigation measures. The monthly site inspection reports should cover the following:

- routine observations of behaviours and practices;
- noting of unusual events, incidents and accidents (natural and human triggered);
- brief statement whether or not conditions of the EMPr are being met; and where it is reportable to authorities;
- possible reasons why conditions are not being met; and
- corrective action plans.

The monthly report should be submitted to the construction contractor and Sibanye-Stillwater's Environmental Superintendent. Copies of the inspection reports should be kept on site.

It is recommended that photographs are taken of the site prior to, during and immediately after construction as a visual reference. These photographs should be stored with other records related to this EMPr. If captured in digital format, hard copies, in colour, must be kept with all other records relevant to the implementation of this EMPr. Photographic reference of wetlands and relocation related aspects should be included.

### **9.2 EMPr Performance Assessments**

During the construction phase and subsequent rehabilitation phase, 6-monthly (i.e. biannual) EMPr Performance Assessments as per the NEMA EIA Regulations must be undertaken by an independent auditor. These reports will be approved/signed-off by both the applicant and Construction Contractor. These reports must be submitted to the competent authority on a biannual basis.

Once rehabilitation is completed, a close-out EMP Performance Assessment must be undertaken to confirm that all required rehabilitation activities have been met prior to the contractor leaving site.

During the operational phase, EMPr performance assessments will be undertaken biennially (once every two years), or as required by the Minister as part of the Marikana Mine's overall EMPr performance assessments. The assessment will be undertaken by an external auditor.

### **9.3 Incident Reporting**

All Sibanye-Stillwater employees and contractors must report non-conformances. The procedure indicates who is responsible and what action must be taken in terms of (SEF, 2012):

- Logging incidents;
- Investigations;
- Remediation measures; and
- Follow up actions.

All non-conformances are to be rated and if significant, be communicated to the General Manager and where necessary, the relevant government departments.

Key role players logging the non-conformances identify appropriate corrective actions. Actions to address EMS system non-conformances not confined to specific sites, are to be identified by the Sibanye-Stillwater Environmental Centre. It is the responsibility of Site Managers to ensure that follow-up actions are executed and progress reports updated on the EMS database until the non-conformance has been cleared.

If trends in non-conformance reporting are identified that indicate continued poor environmental performance of certain sections, operations and/or employees, appropriate corrective and preventative action will be taken.

Environmental non-conformance reports, corrective/preventative actions with associated progress reports are kept in the EMS database.

## **9.4 Emergency Procedures**

Information on Emergency Procedures was obtained from Western Platinum Mine's Final Environmental Impact Assessment and Environmental Management Programme (SEF, 2012).

Sibanye-Stillwater is committed to establishing and maintaining procedures to identify potential emergency situations, to respond to emergencies and to mitigate any resulting safety, health and environmental impacts. In addition, Sibanye-Stillwater will review its emergency procedures (particularly after emergency situations) and periodically test such procedures where practicable.

The Environmental Emergency Plan (EEP) describes the procedures in place with regards to the preparedness and response to environmental emergencies.

The Safety and Sustainability policy aims at prevention of emergencies and therefore all possible measures are taken to eliminate or reduce the potential causes of emergencies.

An emergency is defined in the plan as an unplanned situation or event resulting in involvement of the emergency services, police, fire, paramedic or the regulatory authorities. Emergencies include accidents and emergency incidents.

### **9.4.1 Identification of potential environmental emergencies**

Significant environmental aspects and their associated environmental impacts were identified for all Sibanye-Stillwater operational areas. In the process of identifying the environmental aspects and associated impacts and in formulating the EEP the following factors were taken into consideration:

- All significant environmental aspects identified under emergency conditions;
- Historic emergency events of activities, products and services on/off the site;
- Chemicals, oils and other materials used on site;
- Activities of contractors;
- Concerns of communities and authorities (where submitted);
- Proximity to sensitive areas such as residential areas, schools, wetlands, rivers, etc;
- Availability of local emergency services;
- Availability of trained, on-site personnel for emergency situations; and
- Input, where necessary from Sibanye-Stillwater Emergency Services.

Potential emergency situations identified on WPL include petrochemical/chemical spillages, hazardous material spillages, radioactive incidents, fires, tailings spillages and tailings dam failures, untreated effluent spillages, explosions and natural disasters. Emergency plans have been documented for each of these stipulated emergencies, which include responsibilities in emergency situations, corrective and preventative actions and the reporting of such emergencies.

Where practicable, management measures were introduced to reduce the risk of such environmental emergencies occurring. A site map indicating various aspects related to the potential Safety and Sustainability emergencies is easily available on site. The site map includes the following information:

- Identification of evacuation routes;
- Identification of safety showers and eye-wash stations;
- Identification of fire extinguishers;
- Identification of spill containment equipment;
- Effluent drains, storm water channels, sewage treatment and other water systems;
- Radio-active sources location;
- Site infrastructure such as bulk storage facilities and Major Hazard Installations;
- Prevailing wind directions and neighbouring communities and facilities; and
- Emergency generators.

#### **9.4.2 Roles and responsibilities**

All WPL employees and their contractors working are responsible for reporting any accident/emergency to their supervisor immediately, and if required to notify the emergency response teams according to the Sibanye-Stillwater emergency call out procedure.

The Sibanye-Stillwater Environmental Centre is responsible for the annual testing and review of the applicable emergency response procedures in conjunction with the Rescue Team. The periodic testing of response unit telephone numbers as well as testing of employee response must be carried out. All records of testing must be kept and maintained according to the EMS Records Procedure.

#### **9.4.3 Response to Environmental Emergencies**

The response plan for each of the identified potential emergency situations is reviewed to ensure that:

- Adequate plans, procedures and equipment are in place to respond to emergencies; and
- The environmental impacts associated with these emergencies are mitigated.

#### **9.4.4 Reporting emergencies**

- Telephone hotlines are available 24 hours for the reporting and subsequent emergency follow up;
- Staff operating the hot line, request basic information including type of emergency and appropriate details, time of call, location, caller identity etc;
- Call out procedural posters or notices are displayed across site; and
- Hotline staff notifies response teams.

#### **9.4.5 Emergency plan**

Emergency Plans exists for each potential emergency situation. Each plan provides quick reference to relevant basic information and is not intended to be a comprehensive instruction for handling the emergency.

Actual emergencies are reported and followed up by the Safety and Sustainability Management Procedure for nonconformity, corrective action and preventive action procedure. It is to be ensured that relevant government authorities are contacted by the Safety and Sustainability Departments in terms of the occurrence as per legislative requirements.

Information relative to a particular emergency is documented in the respective emergency plan including:

- Description of the emergency;
- Reference to relevant material safety data sheets;
- Responsibilities for management of emergencies;

- Contact telephone numbers (on-site & off-site);
- Equipment required (including locations); and
- Site plan where applicable



## 10 FINANCIAL PROVISION

Information on Financial Provision was obtained from Western Platinum Mine's Final Environmental Impact Assessment and Environmental Management Programme (SEF, 2012).

Financial provision is required by the DMRE in terms of the following:

- The Mineral and Petroleum Resource Development Act No. 28 of 2002;
- The Mineral and Petroleum Resource Development Regulations, R.527 of 2004;
- The Guideline for Environmental Management Programme Compilation and Format (DMR directive), 2008; and
- The Guideline Document for the Evaluation of the Quantum of Closure-Related Financial Provision Provided by a Mine, January 2005.

Sibanye-Stillwater recognises the need for the determination of appropriate and accurate mine closure costs and that the financial provision made, based on these costs, is a key business requirement. Aligned to this commitment, the following key considerations are given to the annual updates of the Western Platinum Mine closure costs:

- Closure cost determination is conducted annually, for both the scheduled and unscheduled closure scenarios;
- The approach and principles advocated by the latest DMR guideline on the determination of closure costs provide overall direction, with closure costs structured according to the format routinely used for the presentation of closure costs for mine sites as per the following categories:
  - Infrastructural areas;
  - Mining areas;
  - General surface rehabilitation;
  - Water management;
  - Post-closure aspects; and
  - Additional allowances.
- Closure costs only reflect decommissioning and rehabilitation costs, equating to an outside (third party) contractor establishing on-site and conducting the rehabilitation-related work;
- Closure cost determination will be conducted by a competent independent outside party;
- It will be endeavoured to improve the closure costs with each iteration of cost determination, as the mine moves towards the decommissioning phase;
- Within reason, and as dictated by site specific conditions, existing mine related infrastructure that could be beneficially reused after mine closure by local communities and/or landowners will be retained and excluded from the closure costs; and
- Retention of infrastructure and re-use of it by others will be negotiated/discussed with the regulatory authorities during the operational period of the mine for finalisation towards mine decommissioning.

A summary of the closure cost assessment for the K4 Shaft Parking area is provided in Table 10:1. This closure cost assessment will be included in Marikana Mine's annual closure cost assessment and the financial guarantee will be updated.

**Table 10:1 Summary of the K4 Shaft parking area closure cost assessment**

K4 Parking Area			
Closure components		Unscheduled Closure (2021)	Scheduled Closure (2035)
1	Infrastructural aspects	R 4 763 147	R 4 763 147
2	Mining aspects	R 0	R 0
3	General surface rehabilitation	R 448 969	R 448 969
4	Surface water reinstatement	R 0	R 0
	<b>Sub-Total 1</b>	<b>R 5 212 117</b>	<b>R 5 212 117</b>
<b>5</b>	<b>Post-Closure Aspects</b>		
5.1	Post-Closure Aspects	R 138 949	R 138 949
	<b>Sub-Total 2</b>	<b>R 138 949</b>	<b>R 138 949</b>
<b>6</b>	<b>Additional Allowances</b>		
6.1	Preliminary and general	R 312 727	R 312 727
6.2	Contingencies	R 402 133	R 402 133
	<b>Sub-Total 3</b>	<b>R 714 860</b>	<b>R 714 860</b>
	<b>Grand Total Excl. VAT. (Sub-total 1 + 2 + 3)</b>	<b>R 6 065 925</b>	<b>R 6 065 925</b>

## ***11 REFERENCES***

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- The Biodiversity Company (TBC1), 2022. Agriculture Compliance Statement for the proposed K4 Parking Area. February 2022.
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- The Biodiversity Company (TBC3), 2022. Terrestrial Biodiversity Compliance Statement, and Associated Management Plans, for the proposed K4 Shaft New Parking Area Project. February 2022.
- The Biodiversity Company (TBC4), 2022. Wetland Baseline and impact assessment for the proposed K4 Parking Area. February 2022.

## ***12 APPENDICES***

## ***ANNEXURE A: CURRICULUM VITAE OF THE EAP***

## ***ANNEXURE B ALIEN INVASIVE PLANT MANAGEMENT PLAN***



## ***ANNEXURE C: STORMWATER MANAGEMENT PLAN***

## ***ANNEXURE D: REHABILITATION PLAN***