



Itereleng Bakgatla Minerals Resources (Pty) Ltd



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Applicant: Itereleng Bakgatla Mineral Resources (Pty) Ltd

DMR Reference Number: NW30/5/1/2/3/2/1/333MR

DEDECT Reference Number: NWP/EIA/89/2011

DEA Reference Number: TBA

CHANGES TO SURFACE INFRASTRUCTURE AT SEDIBELO PLATINUM MINE

SCOPING REPORT

Submitted with due regard to

consultation with communities and interested and affected parties

as required in terms of Regulation 49 of the Mineral and Petroleum Resources Development Act (Act 28 of 2002), and in accordance with the standard directive for the compilation thereof as published on the official website of the Department of Mineral Resources

and

as required in terms of Regulation 28 of the National Environmental Management Act (Act 107 of 1998).

DOCUMENT INFORMATION

Title	Changes to surface infrastructure at Sedibelo Platinum Mine
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Date last printed	23/10/2012 09:53:00 AM
Date last saved	23/10/2012 09:53:00 AM
Keywords	Sedibelo, Wilgespruit, IBMR, platinum, Pilanesberg
Project Number	B001-03
Report Number	1
Status	Draft
Issue Date	September 2012

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CHANGES TO SURFACE INFRASTRUCTURE AT SEDIBELO PLATINUM MINE

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ACCRONYMS AND ABBREVIATIONS

Acronyms / Abbreviations	Definition
%	Percentage
AGES	Africa Geo-Environmental Services
Al	Aluminium
BID	Background information document
BPDM	Bojanala Platinum District Municipality
Ca	Calcium
Cd	Cadmium
CEC	Cation exchange capacity
Cl	Chloride
DAFF	Department of Agriculture, Forestry and Fisheries
dBA	A-weighted decibel
DEA	Department of Environmental Affairs
DEDECT	Department of Economic Development, Environment, Conservation and Tourism
DMR	Department of Mineral Resources
DRDLR	Department of Rural Development and Land Reform
DWA	Department of Water Affairs
DWEA	Department of Water and Environment Affairs
EAP	Environmental Assessment Practitioner
EAPSA	Environmental assessment practitioner of Southern Africa
EC	Electrical conductivity
EIA	Environmental impact assessment
EMP	Environmental management programme
ESIA	Environmental Social Impact Assessment
ESS	Earth Science Solutions
Fe	Iron
GDP	Gross domestic profit
IAPs	Interested and/or affected parties
IBA	Important Bird Area
IBMR	Itereleng Bakgatla Mineral Resources (Pty) Ltd
IDP	Integrated Development Plan
IWWULA	Integrated Waste and Water Use License Application
K	Potassium
km ²	Square kilometres
LOM	Life of mine
m	Metres
mamsl	Metres above mean sea level
m/s	Metres per second
m ²	Square metre
m ³	Cubic metre
MAR	Mean annual runoff
mbgl	Metres below ground level
Mg	Magnesium
MKLM	Moses Kotane Local Municipality
MI	Megalitre (1 million litres)
mm	millimetres
Mn	Manganese
MPRDA	Mineral and Petroleum Resources Development Act
MVA	Megavolt ampere
MW	Megawatts
N	Nitrogen

Acronyms / Abbreviations	Definition
NAAQS	National Ambient Air Quality Standards
Na	Sodium
NEMA	National Environmental Management Act
NEMA:BA	National Environmental Management: Biodiversity Act
NEMA: WA	National Environmental Management: Waste Management Act
Ni	Nickel
NLA	Newton Landscape Architects
NO ₂	Nitrous oxide
NWEF	North West Eco Forum
NWPTB	North West Parks and Tourism Board
°C	Degrees Celsius
PM10	Particulate matter with a fraction smaller than 10µm (microns)
PM ₁₀	Particulate matter
PPM	Pilanesberg Platinum Mines
PrSciNat	Registered professional in natural science
Richtrau	Richtrau No 123 (Pty) Ltd
ROM	Run-of-mine
RWD	Return water dam
SACNSP	South African Council for Natural Scientific Professionals
SAHRA	South African Heritage Resources Agency
SANBI	South African National Botanical Institute
Se	Selenium
Sedibelo	Sedibelo Platinum Mine
SDF	Standard Design Flood
SO ₂	Sulphur dioxide
SO ₄	Sulphate
TDS	Total dissolved solids
TSS	Total suspended solids
TSF	Tailings storage facility
TSP	Total suspended particles
TWQG	Target water quality guidelines
WMA	Water Management Area

INTRODUCTION

Introduction to the proposed project

Itereleng Bakgatla Mineral Resources (Pty) Ltd (IBMR), owns and operates the developing Sedibelo Platinum Mine on the western limb of the Bushveld Igneous Complex, immediately north of the Pilanesberg National Park in the Moses Kotane Local Municipality, of the Bojanala Platinum District Municipality in the North West Province – refer to Locality maps 1 and 2 for the regional and local settings. The Sedibelo Platinum Mine is located on the farms Wilgespruit 2 JQ, and parts of portion 1 of Rooderand 46 JQ, a portion of the farm Legkraal 45 JQ and a portion of the farm Koedoesfontein 42 JQ. The mine and associated activities were approved in terms of the Mineral and Petroleum Resources Development Act, 28 of 2002 (MPRDA) (Reference number NW30/5/1/2/3/2/1/333MR) and National Environmental Management Act, 107 of 1998 (NEMA) (Reference number NWP/EIA/59/2007) in 2008. The mine also holds a waste licence issued in terms of the NEM:Waste Act, 59 of 2008 for a general landfill and the storage of general and hazardous waste (Reference number 12/9/11/L157/7). The mine is however still in the early stages of development with limited infrastructure developed to date.

As part of a joint venture agreement, the IBMR, Pilanesberg Platinum Mines (Pty) Ltd (PPM) and Richtrau No 123 (Pty) Ltd (Richtrau) which are situated on neighbouring farms, are proposing to develop three separate projects that could function as a combined mining operation. PPM is an existing open pit platinum mining operation with current activities on the farms Tuschenkomst 135 JP and Witkleifontein 136 JP. It is proposed that the existing open pit on the farm Tuschenkomst be extended onto the farms Wilgespruit 2 JQ and a part of portion 1 of Rooderand 46 JQ. Magazynskraal Platinum is the Richtrau proposed underground platinum mining operation on the farm Magazynskraal 3 JQ. Due to the nature of the ore body, it is planned to access and process the ore using mine infrastructure at the Sedibelo Mine. The combined mining operation would therefore include the three mining areas, namely the operational Pilanesberg Platinum Mine (PPM), the approved and currently developing Sedibelo Platinum Mine (Sedibelo), and the proposed Magazynskraal Platinum Mine (Magazynskraal). These three developments are the subject of three separate EIAs, therefore this Scoping Report only addresses the Sedibelo Platinum Mine.

The layout of surface infrastructure at Sedibelo therefore needs to be changed to better suit the combined mining operation. In broad terms, the approved Sedibelo operation comprises an open pit and underground mines, decline and ventilation shafts, a tailings storage facility (TSF), waste rock dump (WRD), topsoil stockpiles, run-of mine pads, explosives magazine, concentrator plant, contractors laydown area, solid and hazardous waste skips and transfer areas, workshops, fuel bays, salvage yard, raw water reservoir, administration buildings, change houses, an accommodation camp, transport and conveyance infrastructure.

The proposed changes to the Sedibelo infrastructure layout include:

- Repositioning / redesigning of approved surface infrastructure: The concentrator plant and shafts will be repositioned to better suit the combined mining operations. In addition, the open pit may be made larger to access the ore body. As a result of the combined mining operations, the TSF and WRD will be redesigned to cater for additional mineralised waste
- Proposed additional surface infrastructure: The proposed additional infrastructure at Sedibelo includes a shaft complex, WRDs, ventilation shafts, stormwater management infrastructure including stormwater dams, channels and berms, sewage pump stations, a helipad and a telecommunications mast
- Increase in capacity of the sewage treatment plant.

Prior to the commencement of the proposed project, an Environmental Impact Assessment (EIA) is required in terms of the Mineral and Petroleum Resources Development Act, 28 of 2002 (MPRDA), the National Environmental Management Act, 107 of 1998 (NEMA), and the National Environmental Management: Waste Act, 59 of 2008 (NEMWA).

SLR Consulting (Africa) (Pty) Ltd (SLR), an independent firm of environmental consultants (formerly known as Metago Environmental Engineers (Pty) Ltd), has been appointed to manage the environmental process.

The EIA process comprises two phases: the scoping phase and environmental impact assessment phase combined with the environmental management programme (EIA/EMP) phase. This report describes the scoping phase for the proposed project. The main purpose of this scoping report is to set out all project-related environmental issues; to identify and outline what investigations need to be conducted; and to detail how these investigations will be performed. The terms of reference generated for the EIA will enable the meaningful assessment of all relevant environmental and social issues.

Brief project motivation (need and desirability)

The layout of surface infrastructure is being changed to better suit the proposed combined mining operation. The expansion of the mine and other infrastructure will benefit society and the surrounding communities, both directly and indirectly, by extending the life of mine, generating additional employment and extracting additional resources. Direct economic benefits will be derived from wages, taxes and profits. Indirect economic benefits will be derived from the procurement of goods and services and the spending power of employees.

Legal Framework

Prior to the commencement of the proposed project, environmental authorisation is required from government departments. These include:

- Environmental authorisation from the North West Department of Economic Development, Environment, Conservation and Tourism (DEDECT) in terms of NEMA. The proposed project incorporates several listed environmental activities. An application was submitted by SLR to DEDECT and was accepted by the department (Appendix A **Error! Reference source not found.**). The EIA regulation being followed for this project is Regulation 543 (2010 EIA Regulations)
- An environmental decision from the Department of Mineral Resources (DMR) in terms of Section 102 of the MPRDA in the form of an approved amended Environmental Impact Assessment and Environmental Management Programme (EIA/EMP) report
- Waste licence for waste-related activities from the Department of Environmental Affairs (DEA) in terms of NEM: Waste Act, 59 of 2008. An application will be submitted to the DEA at the appropriate time.
- An amended water use license application from the Department of Water Affairs (DWA) in terms of the National Water Act (NWA) 36 of 1998. An Integrated Water Use Licence application was submitted to the DWA in 2011, subsequent to the completion of the EIA, however this licence has not yet been issued by DWA.

It is expected that any additional approvals/permits needed for the project will be identified during the course of the environmental assessment process. A detailed list will be provided in the EIA and EMP report.

This document has been prepared strictly in accordance with the DMR Scoping Report template format, and was informed by the guidelines posted on the official DMR website. This is in accordance with the requirements of the MPRDA. In addition, this report complies with the requirements of the National Environmental Management Act (NEMA) (Act 107 of 1998). The relevant criteria are indicated in Table 1.

TABLE 1: LEGAL FRAMEWORK

Reference in scoping report	Mining Regulation 49 of Regulation 527 of 23 April 2004	NEMA Regulation 28 of Regulation 543 of 18 June 2010
Introduction		Details of the environmental practitioner who prepared the report, including relevant expertise to carry out scoping procedures.
Introduction		Identify all legislation and guidelines that have been considered in preparing the scoping report.
Section Error! Reference source not found.	Describe the methodology applied to conduct scoping.	
Section 1 and Appendix C	Describe the process of engagement of identified interested and affected	Details of the public participation process conducted in terms of Regulation 28(a),

Reference in scoping report	Mining Regulation 49 of Regulation 527 of 23 April 2004	NEMA Regulation 28 of Regulation 543 of 18 June 2010
	parties (IAPs), including their views and concerns.	including: notification of IAPs, proof of notification, IAP register/database, summary of issues raised by IAPs.
Section 2	Describe the existing status of the environment prior to the mining operation.	Description of the environment that may be affected by the activities.
Section 3.1	Describe the most appropriate procedure to plan and develop the proposed operation.	A description of the proposed activities, a description of the property on which the activity is to be undertaken, and the location of the activity on the property.
Section 4.1 and 4.5	Identify and describe reasonable land use or development alternatives to the proposed operation. Describe the consequences of not proceeding.	A description of any feasible and reasonable alternatives that have been identified.
Section 3	Identify and describe the anticipated environmental, social and cultural impacts, including cumulative effects where applicable.	A description of the manner in which the physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activities. A description of environmental issues and potential impacts, including cumulative impacts.
Section 6	Describe the nature and extent of further investigations required in the environmental impact assessment report.	Information on the methodology that will be adopted in assessing the potential impacts that have been identified. A plan of study for EIA, including: tasks to be undertaken, specialist reports and processes, consultation of authorities, method of assessing environmental issues and alternatives, the option of not proceeding, proposed public participation process, other information required by the authorities.

Scoping phase objectives

The objectives of the scoping phase are to understand the proposed project, identify and describe potential environmental and social impacts, and to set out any related terms of reference for further investigations that will enable the meaningful assessment of all relevant environmental and social issues. The terms of reference for further investigations are included in Section 6.1.

Scoping team

SLR Consulting Africa (Pty) Ltd (SLR), formerly known as Metago Environmental Engineers (Pty) Ltd, is the independent firm of consultants that has been appointed by the applicant company to undertake the environmental assessment. Linda Munro (project manager) has approximately ten years of relevant experience and is registered with the South African Council for Natural Scientific Professions (SACNSP) as a professional natural scientist (PrSciNat) (Environmental Management). Alex Pheiffer (project reviewer) has over 10 years of relevant experience and is registered with the South African Council for Natural Scientific Professions (SACNSP) as a professional natural scientist (PrSciNat) (Environmental Management).

The environmental scoping team includes:

- Alex Pheiffer – Project Reviewer
- Linda Munro – Project Manager
- Caitlin Pringle – Project Assistant
- Ntsako Baloyi – Public Consultation Assistant.

Neither Linda, Alex nor SLR has any interest in the project other than fair payment for consulting services rendered as part of the environmental assessment process.

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LOCALITY MAP 1: REGIONAL SETTING

LOCALITY MAP 2: LOCAL SETTING

1 THE METHODOLOGY APPLIED TO SCOPING

The scoping process was conducted in accordance with the requirements of the legal framework outlined in Table 1 of the Introduction to this report and involved the following steps:

- Key team members conducted a site visit to the Sedibelo Platinum Mine
- Available studies and reports covering the Sedibelo Platinum Mine operations were reviewed
- A project description was drafted in consultation with the client
- Potential positive and negative impacts were identified by considering the project description and site conditions
- Interested and affected parties (IAPs) were identified, notified of the proposed project and consulted (the consultation process is outlined in Section 5 of this report)
- The relevant authorities were identified, notified of the proposed project and consulted (the consultation process is outlined in Section 5 of this report)
- The SLR environmental team identified the investigations required to assess the potential positive and negative impacts (the terms of reference are included in Section 6 of this report)
- A Scoping Report was compiled.

The main sources of information used to develop this report are discussed below.

As part of the approved EIA and EMP report (NW30/5/1/2/3/2/1/333MR and NWP/EIA/59/2007) various specialist studies were commissioned to cover the Sedibelo site. The following studies were completed and have been used to inform this report:

- Bohlweki (2007): *Air Quality Impact Assessment for the Sedibelo Platinum Mining and Smelter Operation, North West Province*
- Earth Science Solutions (2007): *Pedological and Land Capability Site Assessment - Sedibelo Platinum Project* Econ@University of Johannesburg (2007): *Assessment of the Risks Posed to the General Aquatic Ecosystem Associated with the Proposed Sedibelo Platinum Project, North West*
- Francois Malherbe Acoustic Consulting (2007): *Noise Impact Assessment for the Sedibelo Platinum Project*
- Knight Piésold (2007): *Sedibelo Platinum Project Flood Hydrology Report*
- Pistorius, J. (2007): *A Phase 1 Heritage Impact Assessment Study for the Proposed New Sedibelo Platinum Mine Near the Pilanesberg in the North West Province of South Africa*
- Synergy Global and Urban-Econ (2007): *Sedibelo Platinum Mine Socio-economic Impact Assessment Report* Wits Commercial Enterprise and Natural Scientific Services,(2007): *Fauna and Flora Assessment for the Sedibelo Mining Project, North West*
- North West Parks and Tourism Board (NWPTB) (April 2002): *Heritage park Concept Plan second edition*

In addition, the following information was used:

- *Sedibelo Platinum Project Environmental Management Programme* (Knight Piésold Consulting, 2007)
- *Sedibelo Platinum Project Environmental Impact Report* (Knight Piésold Consulting, 2007)
- Topographical maps (1:50 000 scale) (Map numbers: 2527AA Saulspoot; 2427CC; 2526BB; 2527AB; 2427CD).

1.1 HISTORICALLY DISADVANTAGED COMMUNITIES

The historically disadvantaged communities as defined in the DMR Guideline are detailed below.

Communities closest to the Sedibelo Project area include (refer to Locality Map 1):

- Legkraal (including Bofule and Ramasedi, previously known as Ga Masilela) 330 m south of the project area
- Ngweding 1,7 km north of the project area
- Lesetlheng 1,9 km south-east of the project area
- Motlhabe 5 km north-west of the project area.

In addition, subsistence farmers and farm workers reside on the farm Wilgespruit 2 JQ as well as on the neighbouring farm (Magazynskraal 3 JQ).

1.2 HISTORICALLY DISADVANTAGED COMMUNITY LAND OWNERSHIP

The Bakgatla-Ba-Kgafela (BBK) own some of the surface rights in the project area - refer to Table 2.

1.3 DEPARTMENT OF LAND AFFAIRS INTEREST

The Department of Rural Development and Land Reform, formerly known as the Department of Land Affairs has been identified as an interested and affected party (IAP) and landowner, and has been consulted. Proof of consultation is attached in Appendix C.

1.4 LAND CLAIMS

It is understood by SLR that there is a pending land claim on the farm Wilgespruit 2 JQ. Further information on the status of this land claim will be included in the EIA and EMP report.

1.5 RELEVANT TRADITIONAL AUTHORITY

The Bakgatla-Ba-Kgafela (BBK) is the relevant traditional authority for the proposed project area. During the public consultation process it was noted that some of the communities are challenging this leadership. In this regard, refer to Appendix C for minutes of the scoping meetings and correspondence received by SLR, and Appendix D for the Comments and Response Report.

1.6 LANDOWNERS

The title deed owners are listed in Table 2 below. The farm Wilgespruit 2 JQ, a portion of portion 1 of Legkraal 45 JQ and some of the other surrounding farms are held in trust by the BBK. One of the owners of Koedoesfontein 42 JQ has been reported to SLR by the BBK as being deceased. This will be verified by the SLR team and the relevant inheriting parties will be identified during the course of the EIA. Rooderand 46 JQ and the remaining extent of Legkraal 45 JQ are currently held by the State.

TABLE 2: LAND OWNERS IN THE PROJECT AREA

Farm Name	Portion number	Title deed number	Surface owner as per title deeds search (February 2012)
Wilgespruit 2 JQ	0	T1230/1919BP	Bakgatla-Ba-Kgafela Tribe
Rooderand 46 JQ	1	T8993/1916BP	Republic of South Africa
Legkraal 45 JQ *	0	T17606/1935BP	Republic of Bophuthatswana
	1	T18364/2008	Bakgatla-Ba-Kgafela Communal Property Association
Koedoesfontein 42 JQ #	0	T5841/1919BP	Tchinangoe Pilane (1/6 share); Samuel Tilimane Pilane (1/6 share); Noel Pilane (1/6 share); and Bakgatla Tribe (3/6 share)

Notes:

* Information obtained from Deed Search indicates that there are two portions of the farm Legkraal 45 JQ, while the title deed indicates there is one portion. Clarification will be provided in the EIA and EMP report.

Information relating to the farm Koedoesfontein 42 JQ will be clarified in the EIA and EMP report.

1.7 LAWFUL OCCUPIERS

The land is currently occupied by farmers and farm workers who live and work on the property. In addition the IBMR hold the mining right for the Sedibelo Project area.

1.8 OTHER PARTIES THAT MAY BE DIRECTLY AFFECTED

This section briefly discusses whether or not other persons' (including on adjacent and non-adjacent properties) socio-economic conditions will be directly affected by the proposed mining operation.

Other affected parties that may be directly affected include the landowners on the adjacent properties (as listed in Table 3 below) and the associated farm workers.

TABLE 3: LANDOWNERS ADJACENT TO THE PROJECT AREA

Farm Name	Portion number	Title deed number	Surface owner as per title deeds search (February 2012)	
Magazynskraal 3 JQ	0	T56447/2000	Republic of South Africa	
Rooderand 46 JQ	1, 2, 3 and 0 (Remaining Extent)	T8993/1916BP, T16014/1971BP, T3648/1940BP, T457/1979BP	Republic of South Africa	
Ruighoek 169 JP	1 (Remaining Extent)	T23536/1944BP	Simon CZ Makhutle	
	2	T11872/1934BP	Batlako Tribe	
	3	T10424/1937BP	Republic of South Africa	
	4	T23066/1937BP		
	6	T5291/1937BP		
	9	T10327/1937BP		
	10	T7125/1937BP		
	11	T10326/1937BP		
	5	T116/1978BP		Amon Ralegase
	12	T10510/1959BP	David Kgeletsane	
	13	T33057/1945BP	Mahabuke J Makhorle	
	14	T23537/1944BP	Mothobi EE Morkoung	
	15	T107793/2002	Kgatitswe Raboriffe	
	Vogelstruisnek 173 JP	1	T107793/2002	Kgatitswe Raboriffe
	Groenfontein 138 JP	1	T12741/1937BP	Republic of South Africa
2		T1274/1937BP		
Cyferkuil 1 JQ	1	T5284/1937BP	Republic of South Africa	
Zandspruit 168 JP	0	T7072/2006	African Mining - Trust Co Ltd	
Tuschenkomst 135 JP	0	G594/1938BP	Republic of South Africa	
Witkleifontein 136 JP	0	T9313/1937BP	Republic of South Africa	
	1	T11640/1937BP		

Other affected parties that may be affected by the project that have been identified to date include:

- Pilanesberg National Park (including Black Rhino Game Reserve)
- North West Parks and Tourism Board (NWPTB)
- Downstream water users
- Surrounding mining operations
- Surrounding communities on non-adjacent properties (including land owners and land users).

Details on the relevant parties that will be directly affected by the proposed project will be identified during the EIA process and the information will be included in the EIA and EMP report.

1.9 RELEVANT LOCAL MUNICIPALITY

The Moses Kotane Local Municipality (MKLM) is the relevant local municipality.

1.10 OTHER STAKEHOLDERS

The relevant government departments, agencies and institutions responsible for the various aspects of the environment, land and infrastructure that may be affected by the proposed project are listed below:

- Regulatory authorities:
 - Department of Mineral Resources (DMR)
 - Department of Environment Affairs (DEA)
 - Department of Water Affairs (DWA)
 - Department of Economic Development, Environment, Conservation and Tourism (DEDECT)
 - South African Heritage Resource Agency (SAHRA)
 - Department of Agriculture, Forestry and Fisheries (DAFF)
 - Department of Rural Development and Land Reform (DRDLR)
 - Department of Public Works, Roads and Transport (DPWRT)
 - North West Parks and Tourism Board (NWPTB)
 - Moses Kotane Local Municipality (MKLM)
 - Bojanala Platinum District Municipality (BPDM)
 - Ward councillors
- Non-governmental Organisation (NGO):
 - Federation for a Sustainable Environment (FSE) (formerly North West Ecoforum)
- Parastatals:
 - Eskom
 - Magalies Water.
- Other:
 - Pilanesberg National Park.

1.11 NOTIFICATION OF LANDOWNERS, LAWFUL OCCUPIERS AND IAPs

Proof that the landowners, lawful occupiers and IAPs were notified of the project is provided in Appendix C.

2 DESCRIPTION OF THE EXISTING STATUS OF THE ENVIRONMENT

This section has been compiled using studies completed by various specialists for the original EIA (Knight Piésold, 2007) as well as information from the recent site visits by SLR personnel. This baseline information is aimed at giving the reader perspective on the existing status of the cultural, socio-economic and biophysical environment. Detailed information will be provided in the EIA and EMP report.

2.1 AGREEMENT ON EXISTING STATUS OF ENVIRONMENT

Information on the existing status of the environment was provided to IAPs during the scoping meeting, as per the minutes attached in Appendix C. No objections were raised about the information on the existing environment during the scoping meetings, however additional information was provided regarding groundwater use by animals in the Pilanesberg National Park. IAPs will also have the opportunity to review this scoping report which includes details of the existing status of the environment.

2.2 EXISTING STATUS OF THE CULTURAL ENVIRONMENT

The existing status of the cultural environment that may be affected by the proposed project is described in the section below. The term 'cultural resource' is a broad, generic term covering any physical, natural and spiritual properties and features adapted, used and created by humans in the past and present. Cultural resources are the result of continuing human cultural activity and embody a range of community values and meanings. These resources are non-renewable and finite. Cultural resources include traditional systems of cultural practice and belief of social interaction. They can be, but are not necessarily identified with defined locations. Heritage resources are considered to be cultural resources, therefore these resources are dealt with together in the section below.

2.3 EXISTING STATUS OF THE HERITAGE ENVIRONMENT

This section describes the existing status of the heritage and cultural environment that may be affected by the proposed project. The various natural and cultural assets collectively form the heritage. These assets are known as cultural and natural resources. Heritage (and cultural) resources include all human-made phenomena and intangible products that are the result of the human mind. Natural, technological or industrial features may also be part of heritage resources as places that have made an outstanding contribution to the cultures, traditions and lifestyles of the people or groups of people of South Africa.

A Phase I Heritage Impact Assessment (HIA) was conducted as part of the mine's approved EIA and EMP report (Pistorius, 2007). Heritage and cultural resources identified in the project area include:

- Scattered stone tools and potshards from the Stone Age and Iron Age which were rated as having low heritage significance

- Historic colonial house which was rated as having a high heritage significance
- Remains from the recent past, which were rated as having low heritage significance.

It is not considered likely that paleontological resources exist within the project area due to the geology of the area. The project area is underlain by igneous rocks of the Rustenburg Layered Suite of the Bushveld Igneous Complex (BIC) that is exposed only in places. This Complex is an intrusive igneous body comprising a series of ultramafic-mafic layers and a suite of associated granitoid rocks. As these rocks are Precambrian in age and are of igneous origin it is highly unlikely that fossils will be affected by the proposed subsurface mining development. Overlying the rocks of the Rustenburg Layered suite, the entire area is covered by unconsolidated Quaternary sand deposits. These are the only sedimentary deposits in the area to be affected by mining activities, and as the deposits are not consolidated, it is very unlikely that any fossils will be present (Rubridge, 2011).

2.4 EXISTING STATUS OF THE SOCIO-ECONOMIC ENVIRONMENT

This section describes the existing status of current land uses and the socio-economic environment that may be affected by the proposed project.

2.4.1 CURRENT LAND USES AND THE SOCIO-ECONOMIC ENVIRONMENT

The relevant land uses and socio-economic factors that may be affected include the following:

- Mining development at Sedibelo as well as surrounding mines as described in section 2.5.2
- Agriculture (limited cropping and livestock). It should however be noted that cropping was more extensive in the past, with over 30 % of the Sedibelo Project area showing evidence of past cropping activities (Wits Enterprise, 2007)
- Residential (farmers and farm workers)
- Recreational and tourism activities in the area.

Other affected parties that may be affected by the project that have been identified to date include:

- Pilanesberg National Park (including Black Rhino Game Reserve)
- North West Parks and Tourism Board (NWPTB)
- Downstream water users
- Surrounding mining operations
- Surrounding communities on non-adjacent properties (including land owners and land users).
- Persons on the relevant properties and surrounding properties may be impacted upon by the proposed project. Attempts were made by SLR to inform these land users of the proposed project through a social scan process. This involved site visits where SLR personnel tried to

meet with these land users directly and attempted meetings with the 'Dibeso' (community elders). These attempts were however unsuccessful with the land users not being willing to discuss the project with SLR personnel due to disputes between these communities and the BBKTA. SLR will continue to engage with the BBKTA structures during the EIA in order to consult with these land users. Further detail on the public consultation process is provided in section 5.1.4

The potential positive and negative impacts are described in sections 3.13 of the scoping report.

Details on the relevant parties that will be directly affected by the proposed project will be identified during the EIA process, and the information will be included in the EIA and EMP report.

The socio-economic profile is provided in section 2.4.4 below.

2.4.2 MINERAL/PROSPECTING RIGHTS

The IBMR operates under an approved mining right (Reference number NW/30/3/1/2/3/2/1/333) on the farms Wilgespruit 2 JQ, parts of portion 1 of Rooderand 46 JQ, a portion of portion 1 of Legkraal 45 JQ and a portion of Koedoesfontein 42 JQ. The mining right was granted in 2008.

In an agreement between PPM and the IBMR, PPM has purchased the mineral rights for PGMs and associated metals on a portion of Wilgespruit 2 JQ and part of Portion 1 of Rooderand 46 JQ to enable the extension of the Tuschenkomst pit. This area is called the Mining Rights Abandonment Area.

2.4.3 PRE-PROJECT LAND USE

The area for the repositioned surface infrastructure is currently incorporated within the Sedibelo Mine mining right area. However agricultural activities are still conducted on the relevant farms.

As previously indicated, Sedibelo is in the early stages of development. Current infrastructure includes:

- A core shed for storing and logging of drill core
- Administrative support services.

The BBK have allocated agricultural land use rights to various tribe members within the Sedibelo Project area and neighbouring properties. These farmers have employed farm workers, who have in turn established informal residences in the project area. More information will be provided in the EIA on these informal dwellings.

2.4.4 SOCIO-ECONOMIC PROFILE

The regional setting is illustrated in LOCALITY MAP 1. Information provided below is based on the 1996 and 2001 census data from Statistics SA (Stats SA) and 2009/2010 Quantec Data (Quantec Research (Pty) Ltd).

2.4.4.1 Provincial Level – North West Province

- **Population** – The North West Province has a population of approximately 3.2 million residents (Quantec, 2010), with an average household size of 3.6 persons.
- **Economic Activity** – Provincially it was estimated that, in 2009, the most dominant sector contributing to the North West Province's economy was the Mining industry. This was demonstrated by 25 % of the economically active population¹ being employed in this industry. The sectors with the smallest contributions to the province's Gross Geographic Product (GGP) were Electricity and Water, as well as the Transportation industry.
- **Unemployment** – It was estimated that the unemployment rate of the North West Province in 2009 was 26 % (presenting a similar profile to South Africa as a whole – with an unemployment rate of 25 % in the same year).
- **Education** – Ten percent of the working age population has had no formal education. Furthermore, only 18 % of the total population in the province obtained a grade 12/matric education.
- **Basic Services** – The majority of the population's households have access to piped water, with only eight percent using alternate water sources (for example, boreholes, water vendors, wells, tankers, dams, rivers, streams). Approximately 46 % of households with toilet facilities utilise pit or bucket latrines. Eight percent have no toilet facilities. In terms of households' dominant energy source, 86 % use electricity as the primary means for lighting. Refuse removal services are provided to most households, with a small percentage of the population (an estimated nine percent) not having any refuse disposal facilities.
- **Housing** – Within the North West Province, it is estimated that 22 % of the population reside in informal dwellings (with 15 % of the population living in informal settlements and seven percent in backyards).
- **HIV Status** – Those with a tested HIV positive status account for approximately 13 % of the North West Province population. In 2010, one percent of the entire province's residents died of AIDS related illness.

2.4.4.2 Municipal Level – Moses Kotane Local Municipality (MKLM)

- **Population:** Approximately 100 000 people reside in the MKLM area. Of this, approximately 80 % are of a working age between 19 and 65 years and 17 % are below 19 years.

¹ *Economically active population:* consists of both those who are employed and those who are unemployed (as defined by Statistics South Africa) within the *working age population* (includes all those aged between 15 and 65)

- **Education:** As is the case for the province, the local level of education in the people that comprise the workforce age (19 to 65 years) is poor. Of these people, only 18 % have completed secondary education and only 6 % have received education higher than secondary level.
- **Economy/employment:** Excluding the informal sector, the unemployment/not economically active rate is high at an estimated 75 % of the economically active age. Mining, construction and the wholesale retail trade are the major employment providers. Income statistics indicate that 52 % of the working population receive under R 1 600 per month and 40 % receive between R 1 600 and R 6 400 per month.
- **Housing and services:** 75 % of residents reside in brick structures but only 9 % of residents of the 75 % utilise flush toilets and only 8 % receive reticulated water in their dwellings.

2.4.4.3 Local Level – Local Villages

This information is relevant to Motlhabe, Ntsana-Le-Metsing, Ngweding and Legkraal/Bofule. Information on the broader community network will be included in the EIA and EMP report.

- **Population:** Approximately 6 000 people reside in the villages surrounding the proposed project. It is estimated that 58 % of the population is of working age (between 19 and 65 years)
- **Education:** Compared to provincial and local municipality figures, the local level of education in the people that comprise the workforce age (19 to 65 years) is poor with only 4 – 5 % of people with education levels higher than secondary level and only 18 % of people having completed secondary education
- **Economy/employment:** Excluding the informal sector, the unemployment and/or not economically active rate is high at an estimated 80 % of the economically active age. Mining is considered to be the major formal employment provider. Income statistics indicate that 3 % of households received no income, 69 % of households received less than or equal to R 1 600 per month, and between 28 % of households received between R 1 601 and R 6 400 per month
- **Housing and services:** 89 % of residents reside in brick structures, but only 1 % of residents of the 89 % utilise flush toilets and only 1 % receive reticulated water in their dwellings.

2.4.4.4 Local level (Sedibelo Project Area)

The Sedibelo Project area population is characterised by farmers and farm workers. A survey will be conducted to determine the number of people residing on and utilising the relevant farms, their economic activities, farming practices and what basic services they have access to. More information will be provided in the EIA in this regard.

2.5 EXISTING STATUS OF RELEVANT INFRASTRUCTURE

This section describes the existing status of any infrastructure that may be affected by the proposed project.

2.5.1 COMMUNITIES AND COMMUNITY STRUCTURES IN THE VICINITY

As previously indicated, various farm worker homesteads are located within and adjacent to the Sedibelo Project area. More information on these land dwellers and their infrastructure will be provided in the EIA.

Villages surrounding the Sedibelo Project area include (refer to Locality Map 1):

- Legkraal 330 m south of the project area
- Lekutung 1 km east of the project area
- Ngweding 1,7 km north of the project area
- Lesetlheng 1,9 km south-east of the project area
- Mothlabe 5 km north-west of the project area
- Lesobeng and Kgamatha 5,5 km east of the project area
- Ntswana-le-Metsing 5,5 km-north west of the project area
- Magalane 5,6 km north of the project area
- Magong 7,6 km north of the project area
- Moruleng/Saulspoort 8,1 km south-east of the project area
- Manamakgoteng 9,6 km east of the project area
- Monono 12,2 km north-east of the project area
- Sefikile 12,8 km north-east of the project area
- Mabeskraal 20,7 km south-west of the project area.

2.5.2 OTHER MINING OPERATIONS IN THE VICINITY

Various other mining operations are located in the immediate vicinity of the proposed project and include:

- PPM is situated on the farms Tuschenkomst 135 JP, Witkleifontein 136 JP, portion 3 of Rooderand 46 JQ and various portions of Ruighoek 169 JP
- Chrometco chrome mine is situated on portion 2 and the remaining extent of the farm Rooderand 46 JQ.

Additional proposed mining interests in the immediate vicinity include:

- Richtrau (Magazynskraal 3 JQ)
- Platinum Australia (Atla Mining), situated on portion 2 of Rooderand 46 JQ
- Nkwe Platinum (portion RE of Rooderand 46 JQ) (PGM's).
- Chrometco (portion RE of Rooderand 46 JQ) (Chrome).

Other mining operations located further afield include:

- Rustenburg Minerals on the farm Groenfontein 138 JP
- Chrome Corporation on the farm Ruighoek 169 JP
- Merafe - Xstrata Horizon Mine on the farms Ruighoek 169 JP and Vogelstruisnek 17 JP
- Rustenburg Platinum Mines (Union Section) on the farm Zwartklip 405 KQ.

2.5.3 RECREATIONAL FACILITIES WITHIN THE VICINITY

Recreational facilities within the vicinity include:

- Pilanesberg National Park located immediately south of the project area
- Black Rhino Private Game Reserve has been incorporated into the Pilanesberg National Park and is situated on the farm Zandspruit 168 JP
- Ivory Tree Lodge in the Pilanesberg National Park
- The Lebatlhane Nature Reserve north of project area
- BBKTA cultural museum based in Saulspoort/Moruleng
- Sports centre located in Saulspoort/Moruleng
- Sun City, which lies on the southern edge of the Pilanesberg National Park, approximately 25 km south of the proposed site
- Madikwe Game Reserve lies approximately 60 km to the north west of the proposed site
- Further afield there are a number of hotels, restaurants and sporting facilities located in and around the outskirts of Phokeng and Rustenburg some 60 km to the south of the proposed project site.

2.5.4 PROPOSED HERITAGE PARK CORRIDOR

The proposed heritage park corridor (HPC) (refer to Locality Maps 1 and 2) is an initiative being put forward by the NWPTB where it is proposed that over 167 000 ha will be incorporated into the corridor over a 20 year period to allow the joining of the Madikwe Game reserve and the Pilanesberg National Park. This is a piece of land that stretches north of the Pilanesberg towards Dwaalboom and then follows the Dwarsberg Mountain range west before joining the Madikwe Reserve at Molatedi. This initiative forms part of a larger initiative to establish a significant conservation area in the province approaching 1,000,000 ha. The proposed concept will be to establish a core corridor that would have the potential to be expanded over time to increase the nature based tourism to the area and thus increase the socio-economic benefits to the area (NWPTB, 2002).

As part of the HPC, two different corridors are planned. The phase 1 corridor is the wider corridor which will be fenced off to contain non-dangerous game on the farms that form part of the southern part of the

proposed Heritage Park. It is planned that non-dangerous game, community activities and mining activities would co-exist within this corridor. The phase 2 corridor is likely to be a narrower “Big Five” corridor that will be used exclusively for animal movement between Pilanesberg National Park and Lebatlhane Game Reserve (and ultimately the Madikwe Game Reserve), and it will exclude community and mining activities.

The Sedibelo Project area is situated within the proposed HPC and this corridor may be established within the operational phase of the mine. This will need to be taken into account during the EIA studies.

2.5.5 TRANSPORT INFRASTRUCTURE

A network of roads exists in the project area (refer to Locality Map 2). These include:

- The regional tarred R510 (along the eastern boundary of the Pilanesberg National Park)
- The provincial tarred P54-1 (along the western boundary of the Pilanesberg National Park)
- The provincial P50-1 (east / west alignment and connects the R510 to the P54-1)
- The D511 gravel road (north-west / south-east alignment that connects the P50-1 to Magong)
- The D531 gravel road (between Motlhabe and Ntswana-le-Metsing)
- The Z536 gravel road running south from Ngweding (a section of this road has been closed due to PPM’s open pit mining operation. There is a temporary fire break road that follows the eastern boundary of PPM’s pit. PPM has applied for and been granted permission to close the Z536 and construct a new road along the northern boundary of the farm Wilgespruit 2 JQ [Metago, 2009]).

2.5.6 POWER LINES AND TELECOMMUNICATIONS

A significant power line (and the associated ESKOM servitude) is situated to the west of the PPM mining operation in a north-south direction (refer to Locality Map 2). There is a network of low voltage power lines and telephone lines which service the area. These lines usually follow roads before branching off to individual properties.

2.5.7 WATER PIPELINES

The Magalies Water pipeline crosses Wilgespruit in an east-west orientation along the northern boundary (refer to Locality Map 2).

2.6 EXISTING STATUS OF THE BIOPHYSICAL ENVIRONMENT

This section describes the existing status of the biophysical environment that may be affected by the proposed project.

2.6.1 GEOLOGY

Sedibelo is situated in the Bushveld Complex (BC). The BC is an intrusive igneous body, extending about 400 km from east to west and about 350 km from north to south. It comprises a series of ultramafic-mafic layers and a suite of associated granitoid rocks. There are four main limbs to the complex, namely the Northern Limb, the Eastern Limb, the Southern Limb and the Western Limb. Sedibelo is located in the Western Limb.

The ultramafic-mafic rocks of the BIC are known as the Rustenburg Layered Suite. The stratigraphy of the Rustenburg suite is summarised as follows:

- Upper zone consisting of norites, gabbros and diorites, magnetite seams
- Main zone consisting of norites and gabbros
- Critical zone consisting of pyroxenites, norities and anorthosites. It is within this layer that the platinum group metals are found
- Lower Zone consisting of pyroxenities and harzburgities, chromitite seams
- Marginal zone consisting of pyroxenites and norites.

The target ore body for the proposed project is the Merensky and UG2 reefs.

2.6.2 TOPOGRAPHY

The topographic relief of the project area can be described as relatively gently sloping towards the north-east of the study area. Topographic elevation varies between 1060 to 1100 metres above sea level (mamsl). The project area is relatively flat, at an average elevation of 1080 mamsl. To the south of the proposed project is the Pilanesberg Mountain Range and the associated hills that vary between 1 330 and 1 534 mamsl. Isolated koppies are located approximately 11 km to the west of the project site and vary between 1 211 and 1 266 mamsl. Two main river systems cross the site as discussed in section 2.6.7 below.

2.6.3 CLIMATE

2.6.3.1 Regional climate

The project area falls within the Highveld Climatic Zone, as defined by Schulze (1974). The average annual precipitation ranges from 500 mm to 700 mm (WRC, 1994). Rainfall is generally in the form of thunderstorms. These can be of high intensity with lightning and strong gusty south-westerly winds. Hail frequency is high, tending to occur four to seven times per season. Temperatures in this climatic zone are generally mild, but low minima can be experienced in winter due to clear night skies. Frost characteristically occurs in the winter months. Generally winds are light, but south-westerly winds associated with thunderstorms are typically strong and gusty.

2.6.3.2 Weather stations

The nearest weather stations are in the Pilanesberg area, situated approximately 20 km south east of the project area. Details of the weather stations are included in the table below. Weather data will be sourced from the weather stations with the most reliable and longest record as required.

TABLE 4: SOUTH AFRICAN WEATHER SERVICE STATIONS IN THE VICINITY OF THE PROJECT

	South Africa Weather Stations			
	Pilanesberg A*	Pilanesberg B*	Pilanesberg - Pol	Saulspoot
Station number	0548290 7	0548375 A4	0548165 W	0548280 W
Latitude (South)	25° 20'	25° 15'	25° 14'	25° 09'
Longitude (East)	27° 10'	25° 13'	27° 06'	27° 10'
Elevation (mamsl)	1 043	1 085	1 280	1 095
Length of data record available	1961 to 1990 (Rainfall, temperature and humidity data available)	1993 to 2007 (Rainfall data available)	79 years (24 hr rainfall and evaporation data available)	38 years (Evaporation data available)
Elevation difference based on the mean 1 060 mamsl for the site	-17m	-25m	+220m	-35m
Distance and direction from the site	±20km south east	±20km south east	±19km south east	±15km south east

* For this report, the two Pilanesberg stations have been labelled A and B for easy reference.

2.6.3.3 Rainfall and evaporation

Average rainfall data was sourced from three South African Weather Service stations mentioned above, namely Pilanesberg A (Station No. 0548290 7), Pilanesberg B (Station No. 0548375 A4) and Pilanesberg–Pol (Station No. 0548165 W).

The majority of the rainfall is during the summer months of October to March at which time approximately 90% of the annual rainfall occurs.

Evaporation figures recorded for the area are high and indicate that the area is a water deficit area. The average annual evaporation is 1,990mm. Potential evaporation figures therefore exceed the mean annual precipitation (630mm) by 1,360mm.

2.6.3.4 Temperature

Temperatures in the region tend to be warm to mild, with average maximum temperature of 27.9°C and an average minimum temperature of 11.8°C. Records from the Pilanesberg A Weather Station (Station No. 0548290 7) show that the area has experienced a maximum of 39.5°C in summer and a minimum of -5.0°C in winter over the last seven years the station was operational (1984 – 1990).

2.6.3.5 Wind

The predominant wind direction in the project area is from the south-south east (Bohlweki, 2007). The general prevailing wind field is from the eastern sector, with less frequent winds from the south western and north western sectors. Calm conditions (wind speeds below 1m/s) are predicted to occur for approximately 15% of the time.

During the day-time, winds from the north eastern sector are more frequent, while at night-time, winds from the south eastern sector increase with winds from the south-south east occurring for more than 15% of the time. The day and night-time wind fields reflect the topographical induced flow patterns. The differential heating of slopes gives rise to anabatic (up-valley) flow during the day (increase in frequency of winds from the north-eastern sector) and katabatic (down-valley) flow during the night (increase in frequency of winds from the south-eastern sector).

Airflow varies significantly as the seasons change. The wind flow during the summer months is dominated by winds from the north-northeast with the flow associated with a high frequency of low to moderate wind speeds (1 – 5m/s). During autumn, a distinct shift in the prevailing airflow from summer is noted with winds being mainly from the south eastern sector. The predominant winds during winter are from the south-southeast and during spring, the predominant winds are from the easterly sector.

2.6.4 SOIL AND LAND CAPABILITY

Information in this section was sourced from the soil and land capability study conducted by Earth Science Solutions (ESS) for the original EIA in 2007 (ESS, 2007).

The major soil types encountered in the Sedibelo Project area comprise orthic phase Hutton, Shortlands and Valsrivier soil forms, along with the more heavily structured forms, including the Swartland, Sterkspruit, Inhoek, and Arcadia, shallow Milkwood and Mayo and the wet based Bainsvlei, Avalon, Sepane, Kroonstad, Katspruit, Rensburg and Bonheim Forms. These soils range from moderate to good quality arable soils on the more friable and sandy clay loams (Hutton, Shortlands and some of the Valsrivier forms) to poor and very poor quality arable soils with extremely low economic potential on the structured and wet based soils. The majority of the project site is underlain by shallow structured soils, or highly structured poor quality soils that show signs of wetness, and that are at best rated as wilderness lands (if dry), or wetlands (where wet), and which will require high levels of management if they are going to be impacted by the mine and its operations.

With regard to land capability, ESS found the following:

- Arable land - 2.64%
- Conservation land - 27.92%

- Grazing land - 39.53%
- Wetland - 23.85%
- Dam - 0.55%
- River - 5.51%.

2.6.5 FLORA (NATURAL PLANT LIFE)

Information in this section was sourced from the flora study conducted by Wits Enterprise for the original EIA in 2007 (Wits Enterprise, 2007).

The vegetation within the study area is relatively homogenous and disturbed with more diverse mountain vegetation located on the western (Mabeskraal Ridge Habitat) and southern (Pilanesberg Mountain Bushveld) boundaries. The study area is divided into three main habitat or vegetation types – the Acacia Savanna, Acacia-Grewia mixed Savanna and the Riparian zones (Wits Enterprise, 2007).

Acacia Savanna

In terms of dominance, Acacia species such as *Acacia karroo* (Sweet – thorn); *Acacia nilotica* (Scented – pod Thorn); *Acacia tortilis* (Umbrella Thorn) and *Acacia caffra* (Common hookthorn) dominate the tree layer and *Ischaemum afrum* (Turf Grass); *Digitaria eriantha* (Finger Grass); *Aristida congesta subsp congesta* (Tassel Three – awn); *Eragrostis curvula* (Weeping Love Grass); *Eragrostis superba* (Saw – tooth Love Grass); *Ziziphus zeyheri*; *Aerva leucura* and *Polygala hottentotta* (Small Purple Broom) species dominated the herbaceous layer.

Within the study area, crop farming has been extensive in the past (over 30% of the study area) and scattered within all the different habitats, including the Acacia Savanna. However, almost 70% of these cropping areas are in a recovery phase. There were two main recovery groupings that were identified:

- Initial Recovery Phase (recent farming activities) – limited tree cover and herbaceous layer dominated by pioneer species such as *Aristida congesta*; *Aristida scabrivalvis* and *Aristida bipartite*
- Late Recovery Phase (past farming activities) – dense tree layer dominated by Acacia species as well as a more diverse (although still limited in comparison to the ‘intact’ natural areas) herbaceous layer.

Current farming activities are limited and include cropping and livestock grazing.

Acacia-Grewia Savanna

The tree layer is dominated by species such as *Acacia caffra* (Common hookthorn); *Acacia mellifera* (Black Thorn); *Acacia erubescens*; *Acacia tortilis* (Umbrella Thorn); *Boscia albitrunca* (Shepherd's Tree);

Grewia flava (Raisin Bush); *Grewia bicolor*; *Carrisa bispinosa* (Num – num); *Dichrostachys cinerea* (Sickle Bush); *Diospyros lycioides* (Transvaal Bluebush) and *Rhus leptodictya* (Mountain Karee); *Ehretia rigida* (Puzzle – Bush). Herbaceous species within the understory included: *Aloe zebrina*; *Aristida congesta* subsp *congesta* (Tassel Three – awn); *Asparagus densiflorus* (Emerald Fern); *Crabbea hirsuta*; *Crinum bulbispermum*; *Digitaria eriantha* (Finger Grass); *Eragrostis superba* (Saw - tooth Love Grass); *Melinis repens* (Natal Red Top); *Themeda triandra* (Red Grass) and *Viscum rotundifolium* (Mistletoe).

Riparian Areas

Two river systems and associated drainage lines exist within the site and divide the two Acacia habitats. These systems are largely impacted on by the presence of cattle and crop farming. In some areas, crops have been planted and harvested within these systems. Cattle grazing has impacted on the vegetation, specifically around the Moswafole Dam and crossings, causing erosion gullies.

In terms of vegetation, certain sections along the Wilgespruit system were still 'intact' with species such as *Rhus lancea* (Karee); *Combretum erythrophyllum* (River Bushwillow); *Ziziphus mucronata* (Buffalo Thorn); *Tarchonanthus*; and an understory consisting mainly of *Setaria sphacelata* var. *sericea* (Golden Setaria) and *Digitaria eriantha*. Along most of these ephemeral drainage lines in the north limited riparian tree cover is evident and the drainage systems dissipate into the savanna. The dams present along these systems were either completely devoid of vegetation or contained numerous weedy species such as *Bidens pilosa* (Black Jack); *Datura stramonium* (Common Thorn Apple); *Paspalum dilatatum* (Dallis Grass); and *Xanthium strumarium* (Large Cocklebur). Furthermore, cattle had grazed and trampled the remaining vegetation along these systems. In terms of faunal activity, however, numerous bird and frog species were identified within these areas.

Red Data species

Two Red Data Least Concern (LC) species were recorded, namely *Aloe zebrina* and *Hypoxis hemerocallidea*.

Protected species

A number of Protected Species in accordance with the Transvaal Nature Conservation Ordinance (Ordinance 12, 1983) (TNCO) were located within the study area. In terms of Proclamation 22 of 31 March 1995, this legislation is still applicable in the northern provinces including the North West Province. A Protected Tree (PT) species, as published in the Government Gazette No. 29062, Notice 897, 8 September 2006, was also identified within the vicinity of the study area. Permits are required to remove or translocate any protected species.

Protected species found on site include:

- Orange River Lily
- Bushveld VleiLily

- Gladiolus Antholyzoides
- Orbea lutea.

2.6.6 FAUNA (NATURAL ANIMAL LIFE)

Information in this section was sourced from the fauna study conducted by the consulting arm of the University of the Witwatersrand, the Wits Enterprise for the original EIA in 2007 (Wits Enterprise, 2007).

Over 550 faunal species were determined by Wits Enterprise to potentially occur on site. While the presence of only a few of these could be confirmed, the close proximity of the site to Pilanesberg Nature Reserve suggested that many more species actually occur. Furthermore, the site's position within the proposed Heritage Park Corridor between the Pilanesberg and Madikwe Nature Reserves suggested an even greater diversity of faunal species to potentially occur in the area. The table below lists the Red Data species identified as occurring or likely to occur on site.

TABLE 5: RED DATA SPECIES IDENTIFIED IN THE PROJECT AREA (ADAPTED FROM WITS ENTERPRISE, 2007)

Endangered	Vulnerable	Near Threatened	Critically endangered
Mammals			
Tsessebe	Cheetah	Honey Badger	Short-eared trident bat
White-tailed Mouse	Ground Pangolin	Serval	
African Wild Dog		Brown Hyena	
		Spotted Hyaena	
		South African Hedgehog	
		Rusty Pipistrelle	
		Darling's Horseshoe Bat	
		Schreiber's Long-fingered Bat	
Birds			
Saddle-billed Stork	Lappet-faced Vulture	Lanner Falcon	
	Kori Bustard	Black-winged Pratincole	
	African Marsh-Harrier	Marabou Stork	
	Cape Vulture	Lesser Flamingo	
	Denham's Bustard	Yellow-throated Sandgrouse	
	African Finfoot		
	Bateleur		
	African Grass Owl		
	Blue Crane		
Snakes and Amphibians			
		Giant Bullfrog	
		Striped Harlequin Snake	

2.6.7 HYDROLOGY (SURFACE WATER)

Information in this section was sourced from the approved EMP (Knight Piésold, 2007).

2.6.7.1 Drainage and water resources

The Wilgespruit and the Moswa Rivers traverse the project area in a north-easterly direction away from the Pilanesberg and confluence at a Moswafole farm dam in the north-eastern corner of Wilgespruit Farm. These watercourses are non-perennial. The Bofule stream then continues from the farm dam in a northerly direction and flows into the Bierspruit, where it eventually joins the Crocodile River. The study area falls within the A2 sub-drainage region of the Crocodile River, a major tributary of the Limpopo River. The site falls straddles the A24D and A24E quaternary catchment boundary. The dam wall of the Moswafole dam has been breached and current or future use of the dam by the community is unclear (Knight Piesold, 2007).

2.6.7.2 Surface water quality

The Wilgespruit and Moswa Rivers are dry for most of the year; therefore water quality was sampled in the Bofule Dam during October 2006 and March 2007 EIA (Knight Piésold, 2007).

This sampling showed that during the low flow survey, the oxygen concentrations periodically fell below the Target Water Quality Guidelines (TWQG) of South Africa (1996) which is between 80 % to 120 % saturation. During the high flow periods, the water level was low and with high temperatures the oxygen saturation of these systems was low. The levels measured, however, were not considered to have been the result of any modification in the water quality of the non-perennial system. The in situ electrical conductivity (EC) levels fluctuated somewhat. Levels recorded at the Bofule Dam were relatively low as can be expected in non-perennial systems. This is indicative of a slight increase in the salt concentrations during the low flow period. The pH of the water samples was alkaline, ranging from 8.7 to 9.4, and this was considered to be indicative of the type of ions leaching into the aquatic system, which may result from the natural geology. The metal analysis results showed that metals fell below the laboratory detection limits or occur in very low concentrations when comparing these results to the target water quality guidelines (TWQG) of South Africa. Salt ions measured (sodium, magnesium, potassium and calcium) were recorded at higher levels as is expected as these ions are considered macro-elements.

2.6.7.3 Surface water users

Surface water in the area is used for limited domestic and agricultural use and ecosystem functioning due to the ephemeral nature of the watercourses. Downstream users may abstract water for domestic and agricultural use.

2.6.7.4 Wetlands

No wetlands were identified during the 2007 EIA. It is however noted that there are soils with wetland capability as described in section 2.6.4, however, these are typical non-perennial river riparian systems and are not defined as wetlands.

2.6.8 GROUNDWATER

Information in this section was sourced from the approved EMP (Knight Piésold, 2007).

2.6.8.1 Presence of groundwater

According to the groundwater study conducted by Knight Piesold in 2007, the site is underlain by two aquifer units, the shallow weathered zone and deeper fractured aquifer. The aquifer system is complicated by the presence of dolerite dykes that may act as a no-flow boundary. The presence of fractures at various aperture sizes, fracture connectivity, density and length further complicate the site (Knight Piésold, 2007). The depth of the weathered zone (which is mainly norite) ranges roughly from 5 to 40 m, and the depth of the fractured zone (which is also dominated by norite) ranges from 40 to 80 m.

In recent studies conducted by AGES in the vicinity, some of the localised aquifers have been classified as sole source aquifers despite them being minor aquifers (aquifers with yields of less than 1 L/s). The reason for this is that some communities rely on groundwater alone for their basic water requirements because there is currently no reticulation of surface water to the communities to the north of the proposed project area. This statement should however be contextualised as water supply from Magalies Water to the local communities is currently in progress.

Natural springs, known as the Legkraal Springs, are located within the northern wilderness section of the Pilanesberg National Park, located on the farm Rooderand 46 JQ. Initial indications are that these springs are an essential water source for the animals in the Pilanesberg National Park, particularly in the winter months (Black Rhino representatives, pers. comm. 2012).

2.6.8.2 Groundwater quality

Groundwater sampling from boreholes drilled in the project area during the 2007 groundwater study, compared groundwater quality to the TWQG for domestic use and showed that:

- The fluoride concentration was more than the recommended limit in most boreholes
- In most of the boreholes, the total dissolved solids (TDS) value is more than the recommended limit; in a few boreholes it is more than twice of its recommended value
- In most of the boreholes, the electrical conductivity (EC) value is more than the recommended limit; in a few boreholes it is more than twice of its recommended value
- About half of the samples showed calcium, magnesium, aluminium and iron concentrations above the recommended limit
- Sodium, potassium and cadmium were consistently within the recommended limit in all of the samples.

2.6.8.3 Groundwater use

The 2007 groundwater study hydrocensus included 12 boreholes. Seven of these boreholes were located in the area immediately surrounding the project area, with an additional four located on the project area boundary. The remaining point was located within the project area. This hydrocensus found that none of the boreholes surveyed were in use. It is however known that communities in the vicinity make use of groundwater because of an unreliable municipal water supply. The groundwater study for the current EIA will include an updated hydrocensus and more information will be provided in the EIA.

2.6.9 AIR QUALITY

The air quality study conducted by Bohlweki in support of the 2007 EIA identified the following baseline sources of contamination (Bohlweki, 2007):

- Agricultural activities
- Existing mining activities (surrounding mines are described in section 2.5.2)
- Industrial operations such as platinum and chrome smelter operations
- Vehicle dust entrainment and exhaust gas emissions
- Domestic fuel burning
- Veld (bush) fires.

Potential receptors located within approximately a 2 km radius of the Sedibelo Project area include:

- Villages including: Legkraal, Ngweding, Lesetlheng as well as the land users on the farms Wilgespruit 2 JQ and Magazynskraal 3 JQ
- The neighbouring PPM
- Pilanesberg National Park.

2.6.10 NOISE

The noise study conducted by Dr. Malherbe in support of the 2007 EIA measured the baseline noise levels to be representative of a rural residential area. However it is noted that subsequent to this study, the neighbouring PPM Mine was constructed and is currently operating, therefore noise disturbance from this mine is expected to have altered the baseline noise environment (Malherbe, 2007). Potential sensitive receptors are the farm dwellers and the communities identified in section 1.1.

2.6.11 VISUAL ASPECTS

In the undisturbed areas of the Sedibelo project area, the visual characteristic is that of a rural environment dominated by open grassland and thornveld. Limited mining development has taken place

within the Sedibelo Project area but has changed the visual character with the establishment of limited infrastructure and exploration activities. The neighbouring mine is visible from the Sedibelo project area and has changed the visual character of the project area. Potential sensitive receptors are the farm dwellers and the communities identified in section 1.1.

Due to the relatively flat terrain surrounding the proposed project area, it is expected that the project will be visible from the communities surrounding the project area (as described in section 1.1) and road users. The proposed project is unlikely to be visible by the general public that visits the Pilanesberg National Park, but it is likely to be visible from viewpoints on the wilderness trails in the north of the Park.

2.7 RELEVANT ADDITIONAL INFORMATION

None.

3 IDENTIFICATION OF THE ANTICIPATED IMPACTS

Potential environmental, social or cultural impacts, including the cumulative impacts, where applicable, that were identified during the scoping process are discussed under environmental component headings in this section. These discussions should be read with the corresponding descriptions of the baseline environment in Section 2 of the scoping report.

The potential impacts associated with all the phases (construction, operations, decommissioning and closure) have been conceptually identified and described and reference has been made to the studies/investigations that are required to provide the necessary additional information. The project description is provided first in this chapter to provide a reference when discussing the potential impacts.

3.1 PROJECT DESCRIPTION

A description of the proposed project, including a map showing the spatial locality of infrastructure, extraction area and any associated activities is given in the section below.

The aim of the current EIA process is to authorise the proposed changes to the approved Sedibelo infrastructure layout in order to better suit the combined mining operation of PPM, Sedibelo Mine and Magazynskraal Mine.

The proposed changes to the Sedibelo infrastructure layout include:

- Repositioning / redesigning of approved surface infrastructure:
 - The concentrator plant and shafts will be repositioned to better suit the combined mining operation
 - The open pit may be made larger to access the ore body
 - The TSF and WRD will be redesigned to cater for additional mineralised waste.
- Proposed additional surface infrastructure:
 - A shaft complex
 - WRDs
 - Ventilation shafts
 - Stormwater management infrastructure including stormwater dams, channels and berms
 - Sewage pump stations
 - A helipad.
- Increase in the capacity of the sewage treatment plant.

3.2 CONSTRUCTION PHASE

3.2.1 CONSTRUCTION PHASE FACILITIES

Sedibelo is still in the early stages of construction. Construction facilities are expected to be largely unchanged from that described in the approved EIA (Knight Piésold, 2007) and include:

- Contractor's camps and laydown areas
- Workshop/maintenance area for servicing and maintaining equipment and vehicles
- Temporary waste collection and storage area
- Wash bay for washing equipment and vehicles
- Store for storing and handling fuel, lubricants, solvents, paints and construction substances
- Parking area for cars and equipment
- Mobile site offices
- Canteen
- Portable ablution facilities
- Change houses
- Soil and overburden/spoil stockpiles
- Water management infrastructure
- Explosive magazines
- Security and access control
- Haul roads
- Access roads
- Run of mine (ROM) pads
- Temporary services (water, electricity)
- Ventilation infrastructure including fans
- Drill rigs for geotechnical drilling
- Portable air compressors for the sinking operations
- Settling ponds for the sinking operations
- First aid clinic.

These facilities would either be removed at the end of the construction phase or incorporated into the layout of the operational mine.

3.2.2 CONSTRUCTION PHASE ACTIVITIES

The following significant activities are expected to take place during construction:

- Sinking of two decline shafts from surface
- Setting up contractors laydown areas

- Establishing access roads. Temporary access roads will be used initially but the strategy is to construct the permanent access roads early for construction vehicles to access the sites
- Selective clearing of vegetation in areas designated for surface infrastructure in line with a biodiversity management plan and soil conservation procedure to be developed
- Stripping and stockpiling topsoil and sub-soil
- Digging of foundations, trenches and pits
- Preparing residue disposal areas
- Delivery of materials
- Blasting
- General building/construction activities
- Geotechnical drilling for the site preparations and shaft sinking.

3.2.3 OTHER SUPPORT SERVICES

3.2.3.1 Construction workforce and housing

According to the 2007 EIA, the Sedibelo construction workforce was expected to peak at approximately 4,500 people. At this stage, it is envisaged that this workforce will be increased to approximately 6,000 people due to the changes and timing in the proposed infrastructure.

Two separate camps are planned to be constructed in the Sedibelo Project Area, and should house up to a maximum of 3,500 people on site during the construction phase. These camps will have all required amenities to cater for the needs of the occupants. The remainder of the construction workforce will be housed in nearby villages.

3.2.4 CONSTRUCTION PHASE TIMING

The construction of the Sedibelo Mine as per the existing approvals will gain momentum in the latter half of 2013/2014. The proposed infrastructure changes will be implemented as construction develops and the relevant approvals are obtained.

3.3 OPERATIONAL PHASE

3.3.1 SURFACE INFRASTRUCTURE

Key surface infrastructure is not expected to change significantly from that noted in the approved EIA (Knight Piésold, 2007) and will include:

- Sedibelo Open Pit
- Declines and vent shafts for underground workings

- Tailings Storage Facility (TSF) with return water dam (RWD) and associated slurry and water pipelines
- Air compressors
- Crusher and Grout plants and associated infrastructure
- ROM pads
- WRD
- Topsoil stockpiles
- Explosives magazine
- Raw water reservoir and associated infrastructure such as pipelines
- Conveyance infrastructure
- Waste management and storage area
- Sewage treatment plants and associated infrastructure
- Workshops
- Vehicle and equipment servicing bays
- Fuel bays
- Mine storage and salvage yard
- Change houses
- Lamp rooms
- Access control infrastructure
- Administrative buildings and Assay Laboratory
- Accommodation Camp and associated infrastructure
- Contractors laydown areas
- Access roads and internal roads
- Lighting and communication infrastructure
- Potable water reticulation infrastructure
- Stormwater management infrastructure
- Fire detection and fighting facilities
- Parking areas
- Helipad
- Telecommunications mast
- Landfill for general waste.

Figure 1 shows the approved infrastructure layout and Figure 2 shows the proposed infrastructure layout.

FIGURE 1: APPROVED SEDIBELO INFRASTRUCTURE LAYOUT (KNIGHT PIÉSOLD, 2007)

FIGURE 2: PROPOSED SEDIBELO INFRASTRUCTURE LAYOUT

3.3.2 MINING METHOD

The reefs to be mined are the UG2 and Merensky. As described in the 2007 EIA, mining will start in the Sedibelo open pit using a shovel and truck strip mining operation. The open pit will be concurrently backfilled. The original pit was planned to occupy an area of 103 ha, with a length of 1,680 m, width of 800 m and approximate depth of 130 m. The potential optimised open pit could occupy an area of up to 195 ha, with a length of 2,262 m, a maximum width of 1,157 m and a depth of up to 170 m. The open pit will be mined such that a constant feed of ore goes to the plant.

A conventional stoping method will be used underground with hand drilling and scraper cleaning. Scrapers will move the ore from the panels to the central raise rock passes via the advance strike gullies. From there, trucks in the footwall will haul the rock to main level passes that feed the decline conveyor belt.

3.3.3 MINERAL PROCESSING

The two ore types, named Merensky and UG2, will be handled separately throughout the concentrator. This process will be undertaken in order to maximise the economic return from both ore types which require similar, but significantly different concentrator conditions. Both ore types will undergo crushing and screening, milling, primary and secondary rougher flotation and cleaning to produce a concentrate. This concentrate will then be sent off site for smelting and refining.

3.3.4 OTHER SUPPORT SERVICES

3.3.4.1 Operational phase workforce and housing

According to the 2007 EIA, the operational phase workforce was expected to peak at 3,000. At this stage it is expected that this workforce will be increased by approximately 1,000 people due to the proposed changes at the mine.

During the operational phase, the construction camps will be used for guests, converted to conference facilities, etc. Some of the units will be made available to mine workers who wish to reside on site. However, a housing subsidy will be offered to permanent mine workers to encourage home ownership in an effort to decrease the number of mine workers living on site.

3.3.5 LIFE OF MINE

At this stage, the anticipated life of mine as per the 2007 EIA, was expected to be in excess of 25 years, which included surface and underground mining operations. With the proposed changes to the mine, this life of mine is expected to be approximately 40 years.

3.4 TRANSPORT SYSTEMS

Raw materials, employees and final product will be transported to and from site on the existing road network described in Section 2.5.5. Access to the site will be off the D511 (Magong) gravel road.

Within the project boundary, it is proposed that ore will be transported by conveyor from each of the shaft complexes to the processing plant. Various route options will be considered as part of the environmental assessment.

3.5 WATER SUPPLY AND MANAGEMENT

Sedibelo applied and were granted 15.2 Mℓ/d of potable water from Magalies Water. This allocation has subsequently being transferred to Newshelf 1101 (Pty) Ltd who will manage distribution of water to mining operations on Sedibelo and Magazynskraal project areas. No increase in water demand is expected as a result of the proposed changes to the mine.

Sedibelo plans to operate with no point source discharge and re-use contaminated water as far as possible. The site will comply with the National Water Act 36 of 1998 and Regulations 704 in terms of clean and dirty water separation and management.

3.6 POWER SUPPLY

The mine currently uses an Eskom supply rated at 11 kV, 500 kVA. This power is used for accommodation facilities.

Permanent power of 11 kV, 66 MVA will be supplied by Eskom from the Spitskop substation, located approximately 40 km north of the Sedibelo site. This will be supplied to Newshelf 1101 (Pty) Ltd who will manage distribution of power to mining operations on Sedibelo and Magazynskraal project areas.

3.7 WASTE MANAGEMENT

3.7.1 SEWAGE

The mine's approved EMP makes allowance for a sewage treatment plant with the capacity to treat approximately 761 m³/day. The capacity of this treatment plant will be increased to approximately 900 m³/day as required to address the additional staff anticipated for the expansion project. More information will be provided in the EIA.

Effluent from the sewage treatment plant will be fed back into the process water circuit during the operational phase. Every effort will be made to reuse this effluent during the construction phase, however, some of this effluent may need to be treated and used for irrigation. At this stage it is

anticipated that this controlled activity could be "Generally Authorised" through DWA. Details regarding effluent use will be provided to DWA by means of the Water Use Licence amendment process

3.7.2 NON-MINERALISED WASTES

The types of waste that could be generated on site include: hazardous industrial waste (such as packaging for hazardous materials, used oil, lubricants), general industrial waste (such as scrap metal and building rubble), medical waste (such as swabs, bandages) from the staff medical station, and domestic waste (such as packaging, canteen waste and office waste). These wastes will be temporarily handled and stored on site before being removed for recycling by suppliers, reuse by scrap dealers or final disposal at permitted waste disposal facilities.

A waste management area will be established prior to construction and operation. This area will be used to sort, salvage and store all waste types in accordance with the issued Water Licence. Waste that cannot be reused or recycled will be disposed of at the Sedibelo permitted general landfill or at an external permitted hazardous landfill as required.

3.7.3 MINERALISED WASTE DISPOSAL

3.7.3.1 Tailings disposal

The approved TSF was planned to accommodate 20 years of slurry at 350 kilo tonnes per month throughput, with a maximum height of 42 m. This facility was expected to occupy 240 ha and have an in situ clay liner of 0.5 m of prepared black turf.

The proposed new tailings dam has been designed to accommodate 30 years of slurry at a deposition rate of 150 ktpm. It will be located in the original approved position, although the shape has been optimized, and will occupy an area of approximately 257 ha, have a length of 2,270 m, width of 1,556 m, with a maximum height of approximately 50 m. Waste rock from the PPM open pit that straddles the western Wilgespruit property boundary will be used as material for the TSF starter wall. More detail on the design will be provided in the EIA and EMP report.

3.7.3.2 Waste rock disposal

A single waste rock/overburden dump was planned in 2007. This facility was designed to accommodate 102 million tonnes of waste rock (52 million m³) and be approximately 1,000 m by 1,100 m in length and width with a height of approximately 60 m.

The proposed site layout includes three separate WRDs – refer to Figure 2:

- WRD1: 220 ha in extent, 2,190 m long, 1,514 m wide with maximum height of 60 m
- WRD2: 133 ha in extent, 1,650 m long, 872 m wide with maximum height of 60 m

- WRD3: 166 ha in extent, 1,950 m long, 1,250 m wide with maximum height of 60 m.

These WRDs are planned to have a combined storage capacity of approximately 200 million tons of waste rock. WRD1 is located over a property boundary separating the expanded PPM property from Sedibelo. It has therefore been agreed that this WRD be used for the disposal of waste rock from both the expanded Tuschenkomst and Sedibelo open pits.

3.8 CLOSURE

The conceptual closure plan provided in the approved EMP includes the following:

- Existing buildings and structures will be demolished, rubble will be removed and the area levelled
- The haulage and ventilation shafts will be backfilled and sealed
- The open pit will be filled concurrently during operation, but the final void will be backfilled during the closure phase
- The TSF and remaining WRDs will be sloped into benches, contoured and re-vegetated using endemic plant species
- Remaining exposed excavated areas will be filled and levelled using overburden recovered from stockpiles
- Any remaining stockpiles will be smoothed and re-vegetated
- Topsoil will be replaced using topsoil recovered from stockpiles
- Remaining exposed areas will be levelled and re-vegetated using endemic plant species
- Monitoring boreholes will be secured with a locked cap, as monitoring of these boreholes will be required for a time period agreed upon with the authorities, after the mine has closed.

3.9 RELEVANT NEMA LISTED ACTIVITIES

The NEMA activities approved in 2007 are outlined in the table below.

The relevant listed activities (in terms of the NEMA EIA and NEMWA Regulations) which are currently being applied for and are relevant to the proposed project, are listed in the tables that follow.

TABLE 6: APPROVED NEMA ACTIVITIES

Activity Number	Description of activity
Notice 387, 2006	
1c	Above ground storage of petrol, diesel, liquid petroleum gas or paraffin, in containers with combined capacity of 1 000 m ³
1e	Any process or activity which requires a permit or licence in terms of legislation governing the generation or release of emissions, pollution, effluent or waste
1f	The recycling, reuse, handling, temporary storage or treatment of general waste with a throughput capacity of 50 tons or more daily average

Activity Number	Description of activity
1g	The use, recycling, handling, treatment, temporary storage or final disposal of hazardous waste
1j	The bulk transport of dangerous goods using pipelines, funiculars or conveyors with a throughput capacity of 50 tonnes or 50m ³ per day
1p	Treatment of effluent/ wastewater/ sewerage > 15 000m ³
2	Any development activity where the total area of the development is 20ha or more
5	Construction of new roads and new routes
6	The construction of a dam where the highest part of the dam wall, measured from the outside toe of the wall to the highest part of the wall is 5 metres or higher, or where the high water mark of the dam covers an area of 10 hectares or more
8	Undertaking mining related activity
Notice 386, 2006	
13	The abstraction of groundwater at a volume where any general authorisation issued in terms of the National Water Act, No 36 of 1998, will be exceeded

TABLE 7: RELEVANT NEMA ACTIVITIES CURRENTLY BEING APPLIED FOR

Activity Number	Listed Activity	Description of activity
Notice 544, 18 June 2010		
9	<p>The construction of facilities or infrastructure exceeding 1 000 metres in length for the bulk transportation of water, sewage or storm water –</p> <ul style="list-style-type: none"> (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more, excluding where: <ul style="list-style-type: none"> a. such facilities or infrastructure are for bulk transportation of water, sewage or storm water or storm water drainage inside a road reserve; or b. where such construction will occur within urban areas but further than 32 metres from a watercourse, measured from the edge of the watercourse. 	Pipelines longer than 1 000 metres will be established on-site for the bulk transportation of water, storm water and sewage.
10	<p>The construction of facilities or infrastructure for the transmission and distribution of electricity -</p> <ul style="list-style-type: none"> (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or (ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more. 	Establishment of 33 kilovolt powerlines within the project area.
11	<p>The construction of:</p> <ul style="list-style-type: none"> (i) canals (ii) channels; (iii) bridges; (iv) dams; (v) weirs; (vi) bulk storm water outlet structures; (vii) marinas; (viii) jetties exceeding 50 square metres in size; (ix) slipways exceeding 50 square metres in size; or (x) buildings exceeding 50 square metres in size; or (xi) infrastructure or structures covering 50 square metres or more; <p>where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</p>	Bridges will be constructed over watercourses within the project area.
12	The construction of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50000 cubic metres or more, unless such storage falls within the ambit of activity 19 of Notice 545 of 201.	Stormwater dams will be established on-site that will exceed 50 000 cubic metres.

Activity Number	Listed Activity	Description of activity
22	The construction of a road, outside urban areas, (i) with a reserve wider than 13,5 metres or, (ii) where no reserve exists where the road is wider than 8 metres, or for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Notice 545 of 2010.	Private roads will be established for mining vehicles.
23	The transformation of undeveloped, vacant or derelict land to – (i) residential, retail, commercial, recreational, industrial or institutional use, inside an urban area, and where the total area to be transformed is 5 hectares or more, but less than 20 hectares, or (ii) residential, retail, commercial, recreational, industrial or institutional use, outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares; - except where such transformation takes place – (i) for linear activities; or (ii) for purposes of agriculture or afforestation, in which case Activity 16 of Notice No. R. 545 applies.	An accommodation camp will be established on site and may need to be expanded.
37	The expansion of facilities or infrastructure for the bulk transportation of water, sewage or storm water where: (a) the facility or infrastructure is expanded by more than 1 000 metres in length; or (b) where the throughput capacity of the facility or infrastructure will be increased by 10 % or more-excluding where such expansion: (i) relates to transportation of water, sewage or storm water within a road reserve; or where such expansion will occur within urban areas but further than 32 metres from a watercourse, measured from the edge of the watercourse	Pipeline infrastructure for the bulk transportation of water will be expanded by more than 1 000 metres.
Notice 545, 18 June 2010		
5	The construction of facilities or infrastructure for any process or activity which requires a permit or license in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent and which is not identified in Notice No. 544 of 2010 or included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case that Act will apply.	The following will require an amendment to the Water Use License Application that has been submitted to the Department of Water Affairs in terms of the National Water Act, 36 of 1998: redesigned tailings storage facility and WRDs; additional WRDs; additional sewage treatment capacity; changes to the footprint of the open pit; and stormwater

Activity Number	Listed Activity	Description of activity
		management facilities.
11	The construction of railway lines, stations or shunting yards, excluding - (i) railway lines, shunting yards and railway stations in industrial complexes or zones; (ii) underground railway lines in a mining area; and (iii) additional railway lines within the reserve of an existing railway line.	Railway lines will be established on site to transport ore from the mining area to the concentrator plant.
19	The construction of a dam, where the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, is 5 metres or higher or where the high-water mark of the dam covers an area of 10 hectares or more.	Stormwater dams will be established where the highest part of the dam wall exceeds 5 metres.
Notice 546, 18 June 2010		
2	The construction of reservoirs for bulk water supply with a capacity of more than 250 cubic metres. i. A protected area identified in terms of NEMPAA, excluding conservancies; ii. Outside urban areas, in: (aa) National Protected Area Expansion Strategy Focus areas; (bb) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (cc) Sites or areas identified in terms of an International Convention; (dd) Critical biodiversity areas (Type 1 only) as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ee) Core areas in biosphere reserves; (ff) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; iii. In urban areas: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, or zoned for a conservation purpose.	Reservoirs with a capacity of 2 000 cubic metres will be established on site.
3	The construction of masts or towers of any material or type used for telecommunication broadcasting or radio transmission purposes where the mast: (a) is to be placed on a site not previously used for this purpose, and (b) will exceed 15 metres in height, but excluding attachments to existing buildings and masts on rooftops. i. Outside urban areas, in: (aa) A protected area identified in terms of NEMPAA, excluding conservancies;	A telecommunications mast will be established on site.

Activity Number	Listed Activity	Description of activity
	(bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an International Convention; (ee) Critical biodiversity areas (Type 1 only) as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or biosphere reserve. ii. In urban areas, the following: (aa) Areas designated for conservation use in adopted Spatial Development Frameworks, or zoned for a conservation purpose.	
4	The construction of a road wider than 4 metres with a reserve less than 13,5 metres. i. Outside urban areas, in: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an International Convention; (ee) Critical biodiversity areas (Terrestrial Type 1 and 2 and Aquatic Type 1) as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from a biosphere reserve. ii. In urban areas: (aa) Areas zoned for use as public open space; (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose; (cc) Natural heritage sites.	Roads will be established on the project site for mine related traffic.

Activity Number	Listed Activity	Description of activity
14	<p>The clearance of an area of 5 hectares or more of vegetation where 75 % or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for:</p> <p>(1) purposes of agriculture or afforestation inside areas identified in spatial instruments adopted by the Competent authority for agriculture or afforestation purposes;</p> <p>(2) the undertaking of a process or activity included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the activity is regarded to be excluded from this list;</p> <p>(3) the undertaking of a linear activity falling below the thresholds in Notice 544 of 2010.</p>	<p>The proposed development will require the clearance of an area larger than 5 hectares of indigenous vegetation.</p>

The table below lists the waste activities proposed. At this stage it is possible that there is some overlap with activities that have already been approved, and this will be clarified in the EIA.

TABLE 8: RELEVANT NEMWA ACTIVITIES CURRENTLY BEING APPLIED FOR

Activity Number	Listed Activity	Description of Activity
Category A (1)	The storage, including the temporary storage, of general waste at a facility that has the capacity to store in excess of 100 m ³ of general waste at any one time, excluding the storage of waste in lagoons.	In excess of 100m ³ of general waste will be stored in the waste management area.
Category A (2)	The storage including the temporary storage of hazardous waste at a facility that has the capacity to store in excess of 35 m ³ of hazardous waste at any one time, excluding the storage of hazardous waste in lagoons.	In excess of 35m ³ of hazardous waste will be stored in the waste management area.
Category A (4)	The storage of waste tyres in a storage area exceeding 500 m ² .	In excess of 500m ³ of waste tyres will be stored in the waste management area.
Category A (5)	The sorting, shredding, grinding or bailing of general waste at a facility that has the capacity to process in excess of one ton of general waste per day.	In excess of one ton of general waste per day will be handled in the waste management area.
Category A (7)	The recycling or re-use of general waste of more than 10 tons per month.	In excess of 10 tons of general waste will be recycled or re-used per month.
Category A (11)	The treatment of effluent, wastewater or sewage with an annual throughput capacity of more than 2 000 cubic metres but less than 15,000 cubic metres.	Approximately 900m ³ /day sewage will be treated
Category A (18)	The construction of facilities for activities listed in Category A of this Schedule (not in isolation to associated activity).	The waste management area and sewage treatment plants will be constructed.
Category A (19)	The expansion of facilities of or changes to existing facilities for any process or activity, which requires an amendment of an existing permit or license or a new permit or license in terms of legislation governing the release of pollution, effluent or waste.	The sewage treatment plants may require authorisation in terms of the National Water Act for the release of treated effluent.
Category B (1)	The storage including the temporary storage of hazardous waste in lagoons.	Hazardous waste will be stored on site in the waste

Activity Number	Listed Activity	Description of Activity
		management area.
Category B (2)	The reuse and recycling of hazardous waste.	Hazardous waste will be reused and recycled where possible.
Category B (8)	The incineration of waste regardless of the capacity of such a facility.	Waste tyres may be burnt within the waste management area.
Category B (11)	The construction of facilities for activities listed in Category B of this Schedule (not in isolation to associated activity).	The waste management area will be constructed.

3.10 CONFIRMATION OF IAP CONSULTATION AND AGREEMENT ON POTENTIAL IMPACTS

Information was provided to IAPs on the potential impacts during the public scoping meeting. All of the IAP issues, concerns and objections raised during the scoping meetings have been provided in Appendix D. IAPs will also have the opportunity to review this scoping report.

3.11 POTENTIAL CULTURAL ENVIRONMENT IMPACTS

A list and description of potential impacts identified within the cultural environment is provided below as part of archaeological and heritage impacts.

3.12 POTENTIAL HERITAGE ENVIRONMENT IMPACTS

A list and description of potential impacts identified on the archaeological, heritage and cultural environment is provided below.

3.12.1 ARCHAEOLOGICAL, HERITAGE AND CULTURAL RESOURCES

3.12.1.1 Issue: Loss of or damage to heritage resources

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure
			Not applicable

Discussion

During the heritage study conducted by Dr Pistorius in support of the 2007 EIA, the historical house was considered to be of high heritage importance. The scatters of stone tools and potsherds were considered to have low heritage significance. The revised infrastructure layout has the potential to impact upon these heritage resources. The additional work required to address this issue is described in section 6.1.11 of the scoping report.

3.12.2 PALEONTOLOGICAL RESOURCES

3.12.2.1 Issue: Loss of or damage to paleontological resources

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure
Not applicable	Not applicable	Not applicable	Not applicable

Discussion

With regard to paleontological resources, the entire area is underlain by igneous rocks of the Rustenberg Layered Suite of the Bushveld Igneous Complex as discussed in section 2.6.1. This complex is an intrusive igneous body comprising a series of ultramafic-mafic layers and a suite of associated granitoid

rocks. As these rocks are Precambrian in age and are of igneous origin, it is highly unlikely that fossils will be affected by the proposed subsurface mining development. Therefore no additional studies are proposed in this regard as outlined in section 6.1.12.

3.13 POTENTIAL SOCIO-ECONOMIC ENVIRONMENT IMPACTS

A list and description of potential impacts identified on the socio-economic conditions of any person on the property, and on any adjacent or non-adjacent property who may be affected by the proposed mining operation, is provided below.

3.13.1 LAND USE

3.13.1.1 Issue: Impact on existing surrounding agricultural and residential uses

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

The proposed new infrastructure will impact further upon agricultural activities and associated farm dwellers in the project area. However, it should be noted that the approved Sedibelo infrastructure will already cause the displacement of agricultural activities and farm dwellers. The proposed new infrastructure is not expected to impact on surrounding land uses any more than the approved infrastructure and mining activities. The additional work required to address this issue is described in section 6.1.4 of the scoping report.

3.13.2 TRANSPORT SYSTEMS

3.13.2.1 Issue: Disturbance of roads by project-related traffic

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure
Insignificant		Insignificant	Not applicable

Discussion

It is expected that the construction and operation of the revised infrastructure layout will generate significantly more traffic than that anticipated in the 2007 EIA. The additional work required to address this issue is described in Section 6.1.13 of the scoping report.

3.14 POTENTIAL IMPACTS ON EMPLOYMENT OPPORTUNITIES, COMMUNITY HEALTH, COMMUNITY PROXIMITY AND LINKS TO THE SOCIAL AND LABOUR PLAN

A list of potential impacts (positive and negative) on: employment opportunities, community health, community proximity and links to the Social and Labour Plan, is provided below.

3.14.1 POSITIVE AND NEGATIVE SOCIO-ECONOMIC IMPACTS

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

According to the 2007 EIA, the Sedibelo construction workforce was expected to peak at approximately 4 500 people. At this stage, it is envisaged that this workforce will be increased to approximately 6,000 people due to the changes to the surface infrastructure. This will provide additional job opportunities and will be a positive impact.

The following **positive impacts** are expected during the operational phase:

- According to the 2007 EIA, the workforce was estimated to be around 3,000 people. It is expected that the additional shaft will increase this workforce by approximately 1,000 people. This will provide additional job opportunities
- The operation of the Sedibelo Mine will stimulate the local, regional and national economy through jobs, capital investment, increase in service-sector jobs and the sale of PGMs
- Direct investment in the local communities as per the IBMR Social and Labour Plan, including Local Economic Development projects.

Upon closure, there may still be some positive impacts through maintenance and aftercare activities and the fact that the mine would have contributed to a greater economic critical mass, skills, and wealth that can be used in other economic opportunities.

The following **negative impacts** are expected during the construction and operational phases as a result of the proposed changes:

- Increase in traffic on the local roads
- Potential for damage of occupied houses and other structures during blasting at the shaft portals and underground
- Influx of people into the area in search of work, leading to informal settlements and associated problems of crime, disease, and social disruption

- Increased pressure on housing and related services (water, power, sanitation, rubbish removal, schooling)
- Reduced quality of life for surrounding landowners
- Reduced property values
- Sterilisation of mineral resources – refer to Section 3.15.1.

The most significant impact at and after closure will be the loss of income with respect to the local, regional and national economies.

The additional work required to address these issues is described in Section 6.1.14 of the scoping report.

3.15 POTENTIAL BIOPHYSICAL ENVIRONMENT IMPACTS

A list and description of potential impacts identified with the biophysical environment including but not limited to impacts on: flora, fauna, water resources, air and noise, etc; is provided below.

3.15.1 GEOLOGY

3.15.1.1 Issue: Loss and sterilisation of mineral resources

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

By the nature of mining projects, the geology is exploited for the target minerals therefore, the impact on the geology at the proposed project area will be high in all project phases. However, no mineral sterilisation is expected as a result of the proposed changes to the mine. The additional work required to address this issue is described in Section 6.1.4.2 of this scoping report.

3.15.2 TOPOGRAPHY

3.15.2.1 Issue: Hazardous excavations and infrastructure

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

The construction of the new shaft portal and associated surface infrastructure as well as the WRDs and TSF will significantly alter the site topography during the construction phase. Related issues include hazardous excavations and infrastructure which pose a danger to humans and animals, alteration of drainage patterns (discussed under Section 6.1.6) as well as visual impacts (discussed under

Section 6.1.10). During the construction phase this could include foundations and trenching, as well as the establishment of scaffolding and cranes.

The WRDs, TSF and shaft portals and associated dams will remain for the duration on the operational phase and will present potential hazardous structures during this phase.

The actual process of infrastructure removal during decommissioning could also require temporary hazardous structures such as scaffolding, and some excavations.

The WRDs, TSF and shaft portals, although these will be sealed, will remain in perpetuity and will remain as potential hazardous structures.

The additional work required to address this issue is described in Section 6.1.2 of this scoping report.

3.15.3 SOIL AND LAND CAPABILITY

3.15.3.1 Issue: Loss of soil and change in land capability through sterilisation, erosion and contamination

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

Topsoil is generally a resource of high value containing a gene bank of seeds of indigenous species. A loss of topsoil (through sterilisation, erosion or contamination) would generally result in a decrease in the rehabilitation and future land use potential of any land that is disturbed by the project. The additional WRDs, the larger TSF, the additional shaft, helipad and new waste management area will increase the overall footprint of mine infrastructure. Topsoil and subsoil will be disturbed during the construction phase when the footprint areas for this surface infrastructure will be stripped. The topsoil and subsoil will be stockpiled for use during rehabilitation upon closure of the mine as per the approved management measures.

At this stage no additional soil stripping is envisaged for the operational phase of this project. However, improper management of topsoil stockpiles during this phase and accidental spills could also result in a loss of topsoil through contamination, erosion and compaction.

At decommissioning, the topsoil and subsoil will be used to rehabilitate the site after the infrastructure has been removed. However, the actual process of infrastructure removal during decommissioning could cause soil erosion and contamination.

The TSF and WRD will remain in perpetuity and these areas will not be returned to agricultural use.

The additional work required to address this issue is described in section 6.1.3 of this scoping report.

3.15.4 FAUNA AND FLORA (NATURAL PLANT AND ANIMAL LIFE)

3.15.4.1 Issue: Loss of natural vegetation and animal life

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

The additional WRDs, the larger TSF, the additional shaft, helipad and new waste management area will increase the overall footprint of mine infrastructure and this has the potential to impact negatively on plant and animal life, including terrestrial and aquatic ecosystems in the project area and immediate surrounds. This will apply to site clearing and building activities during the construction phase, general mining activities during operations and demolition and rehabilitation during decommissioning. The WRDs and TSF will remain in perpetuity and represent residual impacts. The additional work required to address this issue is described in section 6.1.5 of this scoping report.

3.15.5 HYDROLOGY (SURFACE WATER)

3.15.5.1 Issue: Alteration of surface drainage patterns

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

The approved Sedibelo infrastructure will already encroach on stream floodlines. The proposed additional surface infrastructure will result in further encroachment during construction, operation and decommissioning. The TSF and WRDs will remain in perpetuity and represent residual impacts on drainage patterns. The additional work required to address this issue is described in Section 6.1.6 of this scoping report.

3.15.5.2 Issue: Contamination of surface water

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

Projects of this nature will generally present a number of pollution sources that can have a negative impact on surface water quality during the construction and operational phases if unmanaged. Site clearing activities could cause sedimentation of watercourses during the construction phase. Various potential pollution sources could result in contamination of watercourses during the operational phase by the extension of the life of mine, such as tailings spillages (especially if the pipelines must cross streams), spillages of fuel and lubricants, runoff from the residue facilities, and particles from exposed soils in the form of suspended solids. The additional work required to address this issue is described in Section 6.1.6 of this scoping report.

3.15.6 GROUNDWATER**3.15.6.1 Issue: Reducing groundwater levels and availability**

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure
Not applicable			

Discussion

The approved Sedibelo Mine activities include dewatering (however, it is noted that this is yet to be authorised by DWA), and the revised underground mining plan and larger open pit area may increase the amount of water to be removed from underground during shaft sinking and mining during the operational phase.

Dewatering activities will stop when the mine closes and the groundwater table should recover to its pre-mining level. No residual impacts are anticipated at this stage from the shafts and associated infrastructure on groundwater availability after closure.

The additional work required to address this issue is included in Section 6.1.7 of this scoping report.

3.15.6.2 Issue: Contamination of groundwater

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

Groundwater could become contaminated through the incorrect stockpiling of potentially polluting waste materials on the site during the construction and decommissioning of the proposed new infrastructure.

The approved residue facilities will already have an impact on groundwater quality as described in the approved EMP (Knight Piésold, 2007). However, the larger TSF and additional WRDs planned, may increase the risk of groundwater contamination during the operational phase. Other possible sources of

groundwater contamination during the operational phase include seepage from accidental spills and leaks, seepage from blasting residues and exposure of groundwater to exposed rock which will be continued due to the extended life of mine.

The residue facilities will remain in perpetuity and represent potential residual impacts.

The additional work required to address this issue is included in Section 6.1.7 of this scoping report

3.15.7 AIR QUALITY

3.15.7.1 Issue: Pollution from emissions to air

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

Vegetation and topsoil stripping during the construction of the new shaft, residue facilities, materials handling, blasting and associated infrastructure will generate dust, as will vehicle movement.

The main source of dust during the operational phase will be the tailings storage facility. Should further vegetation or topsoil stripping be required during the operational phase, this could generate dust. Other potential dust sources during the operational phase include open pit mining, material handling, topsoil stockpiles and vehicle movements. The WRDs may also be considered possible dust sources.

Rehabilitation activities will generate dust through vehicle movement and the replacement of topsoil over disturbed areas. Proper management and re-vegetation of the TSF and WRDs after closure will prevent dust arising from these facilities, which will remain in perpetuity.

The additional work required to address this issue is included in Section 6.1.8 of this scoping report.

3.15.8 NOISE

3.15.8.1 Issue: Increase in disturbing noise levels

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure
			Not applicable

Discussion

Site clearing activities, vehicle movements and blasting on site will increase the ambient noise during the construction phase. Blasting and general mining activities associated with the revised underground mine plan and larger open pit will also increase ambient noise levels during the operational phase, as will

rehabilitation activities due to vehicle movement upon closure. The additional work required to address this issue is described in Section 6.1.9 of this scoping report.

3.15.9 VISUAL ASPECTS

3.15.9.1 Issue: Negative visual impacts

Project phase/s in which impact could occur

Construction	Operational	Decommissioning	Closure

Discussion

The approved Sedibelo infrastructure will already have a negative visual impact however, the extended TSF, open pit, new s and additional shaft may increase this visual impact during construction, operations and decommissioning. The larger TSF and additional WRDs could add to the residual impacts as these facilities will remain in perpetuity and permanently change the visual landscape. The additional work required to address this issue is described in Section 6.1.10 of this scoping report.

3.16 POTENTIAL CUMULATIVE IMPACTS

This section provides a description of potential cumulative impacts that the proposed operation may contribute to, considering other identified land uses, which may have potential environmental linkages to the land concerned.

All identified impacts in the preceding sections will be considered in a cumulative manner such that the impacts of the current Sedibelo mining activities and those potentially associated with the redesign/repositioning of surface infrastructure will be assessed cumulatively. In addition, the impacts of the neighbouring mines PPM and Magazynskraal will be assessed cumulatively as appropriate as these mines may form one overall operation in the future. The baseline studies to be undertaken to characterise the existing environment during the EIA Phase will assess the current status of the environment and will therefore take in account existing impacts of activities in the project area and surrounds.

4 PROJECT ALTERNATIVES

This section describes land use or development alternatives, alternative means of carrying out the operation, and the consequences of not proceeding with the proposed operation.

The main project alternatives to be considered include:

- Alternative land use
- Project alternatives
- The “no-go” alternative

4.1 LAND USE ALTERNATIVES

A list and description of alternative land uses that exist on the property or on adjacent or non-adjacent properties that may be affected by the proposed mining operation is provided below.

The Sedibelo Mine and associated infrastructure has already been approved for mining in terms of NEMA and the MPRDA. Therefore there is no land use alternative considered.

4.2 PROJECT ALTERNATIVES

4.2.1 INFRASTRUCTURE LAYOUT ALTERNATIVES

Components of the Sedibelo Mine infrastructure has been repositioned/redesigned in order to better serve the requirements of the combined mining operation with PPM and Magazynskraal as outlined in Section 3.3.1. The repositioned/redesigned surface infrastructure will be located within the mine boundary and as a result no alternative sites have been considered.

The location of the increased footprint of the open pit and the additional shaft is fixed due to geological constraints and as such no alternative sites have been considered.

4.3 LAND DEVELOPMENTS WHICH MAY BE AFFECTED BY THE PROPOSED PROJECT

This section provides a description of land developments identified by the community or IAPs that are in progress and which may be affected by the proposed mining operation.

With reference to Section 2.5.4, the proposed project area will be incorporated into the proposed Heritage Park Corridor that aims to link the Pilanesberg National Park and the Madikwe Game Reserve. This will be taken into account during the EIA and relevant specialist studies.

All objections, issues and concerns raised throughout the Scoping Phase have been captured into the issues and concerns report provided in Appendix D.

4.4 IAP PROPOSALS TO ADJUST PROJECT PLAN

This section provides a description of proposals made in the consultation process to adjust the operational plans of the mine to accommodate the needs of the community, landowners and IAPs.

All objections, issues and concerns raised throughout the Scoping Phase have been captured into the issues and concerns report provided in Appendix D. At the focussed meeting held with Black Rhino on 7 March 2012, attendees requested that the location of the southern WRD and the accommodation camp be reconsidered.

4.5 THE “NO-GO” OPTION

This section provides information in relation to the consequence of not proceeding with the proposed mining operation.

The assessment of this option requires a comparison between the options of proceeding with the project with that of not proceeding with the project. The assessment of this option requires input from the investigations described in Section 6 so that the full extent of environmental, social and economic considerations can be taken into account.

The method to be used for assessing this option is outlined in Section 6.3 of the scoping report.

4.6 PROJECT PLAN

A description of the most appropriate procedure to plan and develop the proposed project is provided in Section 3.1.

4.6.1 AVOIDANCE OF POTENTIAL IMPACTS

This section provides information on the applicant’s response to the findings of the application process and the possible options to adjust the mine project proposal to avoid potential impacts identified in the consultation process.

The 2007 EIA took into account the recommendations of all of the specialist studies and comments in order to develop the project in a manner which aimed to prevent, minimise and mitigate significant impacts. A detailed EMP was developed in this regard.

The overall project team, which consists of the IBMR, various environmental specialists and SLR, aims to adjust the project plan to accommodate the additional infrastructure and activities proposed in a manner which will prevent impacts to the socio-economic, cultural and biophysical environment. Should any impacts related to the amended project scope be unavoidable, the emphasis will be on impact minimisation and mitigation. The input provided by the relevant EIA specialists will be used to inform any required changes to the project plan during the EIA phase of the project.

4.6.2 PROJECT PLAN TO AVOID POTENTIAL IMPACTS

This section describes the most appropriate procedure to plan and develop the proposed mining operation with due consideration of the issues raised in the consultation process

As indicated above, the overall project team, which consists of IMBR, various environmental specialists and SLR, aims to develop the project plan in a manner which will prevent impacts to the socio-economic, cultural and biophysical environment. Should impacts relating to the amended project scope be unavoidable, the emphasis will be on impact minimisation and mitigation. The input provided by the relevant EIA specialists will be used to inform any required changes to the project plan during the EIA phase of the project.

5 DESCRIPTION OF THE PROCESS OF ENGAGEMENT OF IAPS, INCLUDING THEIR VIEWS AND CONCERNS

5.1 INFORMATION SHARING

This section describes the information provided to the community, landowners and IAPs to inform them in sufficient detail of what the mining operation will entail on the land, in order for them to assess what impact the operation will have on them or the use of the land. It should be noted that a joint public consultation process was implemented for the Sedibelo, Magazynskraal and PPM projects.

5.1.1 DATABASE

The database for the Sedibelo project was developed using databases from previous and ongoing projects in the project area and supplemented with information on IAPs provided in the scoping meetings. The joint Sedibelo-Magazynskraal-PPM database is provided in Appendix C.

5.1.2 BACKGROUND INFORMATION DOCUMENT (BID)

A BID was compiled and distributed by hand (during the social scan and at the scoping meetings) and e-mail to IAPs and authorities on the project's public involvement database. The purpose of the BID was to inform IAPs and authorities about the proposed project, the environmental assessment process, possible environmental impacts, and means of providing input into the environmental assessment process. Attached to the BID was a registration and response form, which provided IAPs with an opportunity to submit their names, contact details and comments on the project. A copy of the joint Sedibelo-Magazynskraal-PPM BID is provided in Appendix C.

5.1.3 NOTIFICATION

The BBK own some of the properties and are the applicant. The Republic of South Africa (care of the Department of Land Affairs [DLA]) was notified telephonically and in writing of the proposed project. Proof of these notifications is provided in . To date, SLR has not been able to contact one of the landowners of the farm Koedoesfontein 42 JQ, Mr Palane Tchinangoe. We have been informed by the Bakgatla Ba-Kgafela Tribal Council that Mr Tchinangoe Pilane is deceased, however, this is yet to be confirmed and the inheritor is still to be identified.

Attempts were made by SLR to inform the land users of Rooderand 42 JQ and Wilgespruit 2 JQ of the proposed project through a social scan process. This involved site visits where SLR personnel tried to meet with these land users directly and attempted meetings with the 'Dibeso' (community elders). These attempts were however unsuccessful with the land users not being willing to discuss the project with SLR personnel due to disputes between these communities and the BBKTA. SLR will continue to engage with the BBKTA structures during the EIA in order to consult with these land users.

Site notices in English and Setswana were placed at key conspicuous positions in and around the project site and surrounding villages. Block advertisements were placed in The Sowetan and The Rustenburg Herald newspapers on 27 January 2012. Photographs of the site notices and copies of the newspaper advertisements are provided in Appendix C.

IAPs were notified of the proposed project and the public meetings in the following manner:

- A newsletter sent by post and/or email
- SMS notification
- Loud hailing in villages where the scoping meetings were scheduled (three days before each meeting)

A copy of the newsletter is attached in Appendix C.

5.1.4 SCOPING MEETINGS

The following scoping meetings were held for the proposed project:

- Fourteen general scoping meetings were held from 5 to 13 March 2012 at various locations surrounding the proposed project site, namely:
 - Saulspoort / Moruleng
 - Lesethheng
 - Manamakgoteng
 - Lekutung
 - Sefikile / Spitskop
 - Mononono
 - Kgamatha / Lesobeng
 - Lekgraal / Bofule
 - Ramasedi
 - Ntswana-le-Metsing
 - Motlhabe
 - Ngweding
 - Magalane
 - Magong.
- One authorities meeting was held on 6 March 2012
- Three focused meetings were held during February and March 2012, namely:
 - Federation for a Sustainable Environment (previously known as North West Eco Forum)
 - Pilanesberg National Park and surrounding industry

- Black Rhino Game Reserve.

It should be noted that the Lesetlheng community meeting was arranged at the Lesetlheng Primary School on 5 March 2012 at 13:00. Upon arrival the Lesetlheng community requested that this meeting be postponed until the 17 March 2012 and requested that the directors of PPM, IBMR, Richtrau as well as the leaders of the BBKTA be invited to this meeting. The meeting (17 March 2012) did not take place as it was not possible for the directors and leaders of the various entities to attend and another meeting was subsequently arranged for 19 May 2012. The community requested that the meeting be moved to 27 May 2012. Due to civil unrest in the area the May meeting was cancelled by Platmin South Africa. A meeting between representatives from the Lesetlheng community and SLR was arranged for 28 June 2012, however SLR was instructed to cancel the meeting. The meeting between SLR and Lesetlheng representatives took place on 26 July 2012. One of the outcomes of the meeting was a formal request, in writing, from SLR to meet with the Lesetlheng community as part of the EIA consultation process. It is understood that the Lesetlheng representatives communicated the request to the community, who responded by stating that they do not want to participate in the consultation process until various conditions have been met. Copies of this correspondence are included in Appendix C.

As the potential exists for the three mining projects described in the Introduction of this report to operate as one mining operation, a presentation was given at each meeting that provided basic information for the three projects and the environmental process being followed. The same presentation was given at all of the meetings. At this early stage in the project, limited information is available regarding the project description as the project is still in the design phase. The meetings therefore focussed on:

- Informing IAPs about the proposed project
- Informing IAPs about the stakeholder engagement process and how IAPs can have input into the process
- Providing information about the baseline environment and obtaining input thereon
- Providing information about the potential impacts of the project and obtaining input thereon
- Providing an opportunity for IAPs to raise issues and concerns. These issues and concerns have been documented in the Issues and Concerns Report (Appendix D) and used to inform the Plan of Study for the EIA Phase.

Meeting attendance registers, minutes, and the meeting presentation are provided in Appendix C and the issues and concerns report is provided in Appendix D.

5.1.5 REVIEW OF SCOPING REPORT

The scoping report will be subjected to public review in September 2012. Full copies of the scoping report will be available for public review at the following venues:

- Villages immediately surrounding the project area, including Lesetlheng; Manamakgoteng; Lekutung; Sefikile/Spitskop; Saulspoort, Mononono; Kgamatha/Lesobeng; Lekgraal/Bofule; Ramasedi; Ntswana-le-Metsing; Motlhabe; Ngweding; Magalane; Magong
- Bakgatla-Ba-Kgafela traditional offices in Saulspoort
- Moses Kotane Local Municipality in Saulspoort
- Rustenburg public library
- Black Rhino Game Reserve
- Pilanesberg Platinum Mine
- SLR's offices in Johannesburg
- Electronically on a CD, on request.

Summaries of the report will be sent by post or e-mail to all IAPs and authorities on the project's public involvement database. In addition, IAPs will be notified when the report is available for review via SMS.

5.2 IAPs CONSULTED DURING SCOPING PHASE

This section discusses which of the identified communities, landowners or lawful occupiers and other IAPs were in fact consulted during the Scoping Phase.

IAPs that are registered on the project database (Appendix B) have been consulted during the scoping phase.

5.3 IAP VIEWS ON EXISTING ENVIRONMENT

All views, issues and concerns raised throughout the Scoping Phase with regard to the existing cultural, socio-economic or biophysical environment have been captured into the issues and concerns report provided in Appendix D.

5.4 IAP VIEWS ON POTENTIAL IMPACTS

All views, issues and concerns raised throughout the Scoping Phase on how the existing cultural, socio-economic or biophysical environment could potentially be impacted upon by the proposed mining operation have been captured into the issues and concerns report provided in Appendix D.

5.5 OTHER IAP CONCERNS

All views, issues and concerns raised throughout the Scoping Phase have been captured into the issues and concerns report provided in Appendix D. Issues pertained to:

- Procedural issues related to the public consultation process
- Technical issues related to the mine design and planned infrastructure
- Socio-economic issues i.e. specifically what benefits could be expected and employment of local people as well as the influx of people into the area. Another significant issue raised was internal tribal issues between several communities and the traditional leadership
- Surface water pollution and loss of water used for domestic and agricultural use
- Groundwater pollution
- Land use changes
- Air quality, specifically dust generation
- Traffic and related safety hazards as well as requests for road upgrading
- Blasting safety hazards and cracking of houses
- Safety hazards related to open excavations
- Heritage resources, specifically potential impacts on graves
- Potential health impacts on people and livestock
- Noise pollution
- Sensitive biodiversity
- Soil and land capability
- Impacts of the existing mining operations.

5.6 MEETING MINUTES AND RECORDS OF CONSULTATIONS

Copies of the scoping meeting attendance register, minutes, and scoping meeting presentation are included in Appendix C, and the issues and concerns report is provided in Appendix D.

5.7 IAP OBJECTIONS

Objections to the proposed project were received and have been recorded in the issues and concerns report included in Appendix D.

6 FURTHER INVESTIGATIONS AND EIA PLAN OF STUDY

This section describes the nature and extent of further investigations required in the Environmental Impact Assessment Report, including any specialist reports that may be required, and sets out the proposed approach to the EIA/EMP phase.

6.1 FURTHER INVESTIGATIONS

The proposed terms of reference for further investigations required for the completion of the EIA study are discussed below. The results of these studies will be collated into a combined EIA and EMP report.

6.1.1 GEOLOGY

It is proposed that no further specialist investigations are required as sufficient information is available on waste rock characterisation from the approved 2007 EIA, as well as information regarding the target mineral resources and geological features. The assessment and detailed management measures will be provided in the EIA and EMP report by SLR.

6.1.2 TOPOGRAPHY

It is proposed that no further specialist investigations are required. The assessment and detailed management measures will be provided in the EIA and EMP report by SLR.

6.1.3 SOIL AND LAND CAPABILITY

The investigation was conducted by Earth Science Solutions early in 2012. The investigation had the following objectives:

- To identify and map the soils in the areas designated for new surface infrastructure
- To collect soil samples for analysis in order to quantify the soil characteristics
- To detail soil and land capability aspects
- To have input, together with SLR, into the project alternatives and the soil management measures going forward.

6.1.4 LAND USE

6.1.4.1 Change in Land Use

It is proposed that no further specialist investigations are required. The assessment and detailed management measures will be provided in the EIA and EMP report by SLR.

6.1.4.2 Sterilisation of mineral reserves

It is proposed that no further investigations are required. The assessment and detailed management measures will be provided in the EIA and EMP report by SLR.

6.1.5 NATURAL VEGETATION AND ANIMAL LIFE (FLORA AND FAUNA)

It is proposed that the detailed (flora, fauna and aquatic system) investigation be conducted by Natural Scientific Services. The investigation has the following objectives:

- Perform desktop and field investigations to identify and map different habitats, concentrating on areas proposed for new infrastructure
- Assign species to each habitat through various trapping and sampling methods
- Rank each habitat type based on conservation importance (in terms of provincial biodiversity priorities) and ecological sensitivity
- Identify potential impacts on ecology
- To have input, together with SLR, into project alternatives and ecology management measures going forward

6.1.6 HYDROLOGY (SURFACE WATER)

SLR will make use of the 2007 surface water study and update this study as required. The investigation will include the following tasks:

- Update the baseline hydrological description. This will include surface water quality sampling
- Update the rainfall intensities per month (1hr, 24hr, 24hr 1:50, 24hr 1:100)
- Update the mean monthly rainfall and evaporation
- Update the mean annual runoff from the mine
- Update flood peaks for recurrence intervals of 1:20, 1:50 and 1:100 years and the regional maximum flood (RMF)
- Determine the drainage density of areas to be disturbed by the additional infrastructure
- Identification and assessment of potential impacts of the development on surface water (quantity and quality)
- Development of relevant management and mitigation measures including updating the detailed storm water management plan
- Provide input, together with SLR and the technical project team into project alternatives and surface water management measures going forward.

6.1.7 GROUNDWATER

It is proposed that detailed investigation will be conducted by AGES. Due to the complex nature of groundwater resources, and the proximity of the Magazynskraal and Sedibelo project sites to one another, one groundwater report will be produced that will assess the impacts of both mining operations. The study will have the following objectives:

- Update the model to cater for additional dewatering and pollution impacts related to the proposed project and the Magazynskraal mine which will be linked underground
- Re-assess the potential impacts on groundwater, taking into account the relevant management and mitigation measures.

6.1.8 AIR QUALITY

Airshed Planning Professionals (Pty) Ltd will conduct a limited desktop study in order to:

- Redefine the position of the receptor residences
- Predict the potential additional health and nuisance impact of emissions on sensitive receptors in the area
- Re-assess the potential impacts of the emissions
- Recommend management measures where required, in consultation with SLR.

6.1.9 NOISE

SLR will make use of the 2007 noise specialist study and assess the changes in noise expected from the proposed changes to the mine on a qualitative basis.

6.1.10 VISUAL ASPECTS

It is proposed that a visual impact investigation be conducted by Newtown Landscape Architects. The investigation will assess the additional surface infrastructure that is proposed as part of this project, as well as the proposed Magazynskraal mine and has the following objectives:

- Define the visual resource and sense of place of the greater area
- Identify the sensitive receptors/ lines of site
- Determine the cumulative visual impact by simulating the key proposed infrastructure components
- Assess the visual impact
- Provide input, together with SLR, into the visual management measures going forward

6.1.11 ARCHAEOLOGICAL, CULTURAL AND HERITAGE RESOURCES

Dr Julius Pistorius has conducted a detailed investigation in 2007 and updated this study in 2012, which included the following tasks:

- Identify and map (through literature review and field work) all archaeological, cultural and heritage resources in the proposed project area
- Assess the significance of the identified resources
- Assess the impact of the proposed project on the heritage resources
- Provide input, together with SLR and the technical project team into project alternatives and heritage resources management measures going forward.

6.1.12 PALEONTOLOGICAL RESOURCES

A desktop assessment of paleontological resources has been undertaken by Professor Bruce Rubidge of BPI for Paleontological Research. This study is deemed adequate for the purposes of this project. A copy of the report will be provided in the EIA.

6.1.13 TRANSPORT SYSTEMS

An addendum to the traffic study that was undertaken for the mine's approved EIA and EMP report will be conducted by Siyazi (Pty) Ltd. The investigation will include the following tasks:

- Confirm current status of road network and intersections under investigation
- Conduct trip generation and distribution calculations
- Conduct detail traffic analyses
- Recommend management measures where required, in consultation with SLR.

6.1.14 SOCIO-ECONOMIC ISSUES

It is proposed that Managing Transformation Solutions (Pty) Ltd (MTS) will conduct a social impact assessment for the proposed project. The objectives of the study are as follows:

- Update the baseline information from the 2007 study detailing the socio-economic and socio-political background to the area in the vicinity of the proposed project
- Identify and assess potential impacts of a social and economic nature from the proposed mine through investigation with a variety of stakeholders
- Provide input, together with SLR and relevant IAPs into appropriate mitigation measures for each of the identified impacts.

Strategy for Good will conduct an economic assessment to meet the requirements of the DMR EIA and EMP report template. The investigation will include the following tasks:

- Comparative land use assessment
- Costs and benefits analysis.

6.2 METHODOLOGY FOR THE ASSESSMENT OF ENVIRONMENTAL ISSUES

The proposed method for the assessment of environmental issues is set out in the table below. This assessment methodology enables the assessment of environmental issues including: cumulative impacts, the severity of impacts (including the nature of impacts and the degree to which impacts may cause irreplaceable loss of resources), the extent of the impacts, the duration and reversibility of impacts, the probability of the impact occurring, and the degree to which the impacts can be mitigated.

TABLE 9: CRITERIA FOR ASSESSING IMPACTS

Note: Part A provides the definition for determining impact consequence (combining severity, spatial scale and duration) and impact significance (the overall rating of the impact). Impact consequence and significance are determined from Part B and C. The interpretation of the impact significance is given in Part D.

PART A: DEFINITION AND CRITERIA*					
Definition of SIGNIFICANCE		Significance = consequence x probability			
Definition of CONSEQUENCE		Consequence is a function of severity, spatial extent and duration			
Criteria for ranking of the SEVERITY of environmental impacts	H	Substantial deterioration (death, illness or injury). Recommended level will often be violated. Vigorous community action.			
	M	Moderate/ measurable deterioration (discomfort). Recommended level will occasionally be violated. Widespread complaints.			
	L	Minor deterioration (nuisance or minor deterioration). Change not measurable/ will remain in the current range. Recommended level will never be violated. Sporadic complaints.			
	L+	Minor improvement. Change not measurable/ will remain in the current range. Recommended level will never be violated. Sporadic complaints.			
	M+	Moderate improvement. Will be within or better than the recommended level. No observed reaction.			
	H+	Substantial improvement. Will be within or better than the recommended level. Favourable publicity.			
Criteria for ranking the DURATION of impacts	L	Quickly reversible. Less than the project life. Short term			
	M	Reversible over time. Life of the project. Medium term			
	H	Permanent. Beyond closure. Long term.			
Criteria for ranking the SPATIAL SCALE of impacts	L	Localised - Within the site boundary.			
	M	Fairly widespread – Beyond the site boundary. Local			
	H	Widespread – Far beyond site boundary. Regional/ national			
PART B: DETERMINING CONSEQUENCE					
SEVERITY = L					
DURATION	Long term	H	Medium	Medium	Medium
	Medium term	M	Low	Low	Medium
	Short term	L	Low	Low	Medium
SEVERITY = M					
DURATION	Long term	H	Medium	High	High

	Medium term	M	Medium	Medium	High
	Short term	L	Low	Medium	Medium

SEVERITY = H

DURATION	Long term	H	High	High	High
	Medium term	M	Medium	Medium	High
	Short term	L	Medium	Medium	High
			L	M	H
			Localised Within site boundary Site	Fairly widespread Beyond site boundary Local	Widespread Far beyond site boundary Regional/ national
SPATIAL SCALE					

PART C: DETERMINING SIGNIFICANCE

PROBABILITY (of exposure to impacts)	Definite/ Continuous	H	Medium	Medium	High
	Possible/ frequent	M	Medium	Medium	High
	Unlikely/ seldom	L	Low	Low	Medium
			L	M	H
CONSEQUENCE					

PART D: INTERPRETATION OF SIGNIFICANCE

Significance	Decision guideline
High	It would influence the decision regardless of any possible mitigation.
Medium	It should have an influence on the decision unless it is mitigated.
Low	It will not have an influence on the decision.

*H = high, M= medium and L= low and + denotes a positive impact.

6.3 METHODOLOGY FOR THE ASSESSMENT OF PROJECT ALTERNATIVES

6.3.1 ASSESSMENT OF THE “NO-GO OPTION”

The assessment of the implications of the “No-Go option” will require a high level comparison between the existing situation without the project and the possible future situation with the project, as assessed in the EIA and EMP report. This comparison will take existing and future impacts into account, including both positive and negative impacts.

6.3.2 ASSESSMENT OF PROJECT ALTERNATIVES

The realistic alternatives and associated assessment criteria for choosing between these alternatives have been discussed in Section 4 of the scoping report. The proposed methodology for the assessment of these alternatives is a relative comparison that also applies the assessment method described above to each of the listed assessment criteria, where possible.

6.4 ENGINEERING DESIGN

The TSF and WRDs will be designed by an appropriately qualified professional engineer at Epoch Resources (Pty) Ltd in accordance with the requirements of Regulation 73 of the Mineral and Petroleum Resources Development Act, 28 of 2002, and Regulation 704 of the National Water Act, 108 of 1998.

6.5 CLOSURE COST ESTIMATE

Sedibelo's closure cost estimate will be updated by SLR engineers using the DMR model.

6.6 WAY FORWARD FOR SCOPING

The way forward for the remainder of the scoping phase is as follows:

- Distribute the scoping report and a summary thereof for review by the IAPs, the DMR and other regulatory authorities
- Submit a copy of the Scoping Report that went out for public review to DEDECT and DEA for their records
- Receive comments from IAPs and other regulatory authorities
- Following the IAP review process, five copies of the final scoping report (with comments) will be forwarded by SLR to DEDECT and DEA: Waste Disposal Management in line with NEMA. It is then expected that the scoping report will be distributed internally by DEDECT for review and comment
- Receive comments from DEDECT, DEA and DMR and address in EIA phase.

6.7 PLAN OF STUDY FOR THE EIA PHASE

6.7.1 EIA PHASE OBJECTIVES

The main objectives of the EIA phase are to:

- Assess project alternatives
- Assess the potential cultural, heritage, socio-economic and biophysical impacts of the project
- Identify and describe procedures and measures that will mitigate potential negative impacts and enhance potential positive impacts
- Liaise with IAPs including relevant government departments on issues relating to the proposed development to ensure compliance with existing guidelines and regulations
- Undertake consultations with IAPs and provide them with an opportunity to review and comment on the outcomes of the environmental assessment process and acceptability of mitigation measures
- Develop an environmental management plan and a conceptual closure/decommissioning plan

- Provide measures for on-going monitoring (including environmental audits) to ensure that the project plan and proposed mitigation measures are implemented as outlined in the detailed EIA and EMP report.

6.7.2 EIA PROJECT TEAM

The proposed EIA project team is outlined in the table below and is similar to the team used for the scoping phase with the inclusion of additional specialists.

TABLE 10: PROPOSED EIA TEAM

Team	Name	Designation	Tasks and roles	Company
Project management	Linda Munro	Project manager	Management of the assessment process, stakeholder engagement and report compilation.	SLR
	Michael Willson	Project administrator		
	Ntsako Baloyi	Stakeholder Engagement		
	Brandon Stobart / Alex Pheiffer	Project reviewer	Report and process review	
Specialist investigations	Susan Abell	Ecological specialist	Terrestrial ecological assessment	Natural Scientific Services cc
	Ian Jones	Soil specialist	Soil and land capability assessment	Earth Science Solutions
	Stephan Meyer	Groundwater specialist	Hydrocensus, groundwater model and water balance	AGES
	Stephen van Niekerk and Mark Bolleart	Engineer and hydrologist	Hydrology and design of water facilities	SLR
	Ben van Zyl	Noise specialist	Noise assessment	Acusolv
	Hanlie Liebenberg-Enslin	Air quality specialist	Air emissions model	Airshed Planning Professionals
	Paul van der Westhuizen	Traffic specialist	Traffic impact assessment	Siyazi
	Dr Julius Pistorius	Heritage consultant	Heritage study	Private Consultant
	Graham Young	Visual impact specialist	Visual impact assessment	Newtown Landscape Architects
	Stephen van Niekerk	Engineer	Closure cost estimate	SLR
	Guy Wiid	Engineer	Tailings and waste rock design	Epoch Resources
	Gerrie Muller	Economist	Economic assessment	Strategy4Good

6.7.3 EIA/EMP PHASE ACTIVITIES AND TIMING

An overview of the EIA/EMP phase and corresponding activities are outlined in the table below.

TABLE 11: EIA/EMP ACTIVITIES AND TIMING

Objectives	Corresponding activities and estimated dates
<i>Further investigations (July to November 2012)</i>	
<ul style="list-style-type: none"> • Describe the affected environment • Define potential impacts • Give management and monitoring recommendations 	<ul style="list-style-type: none"> • Investigations by technical project team and SLR of issues identified during the scoping stage including investigations into alternatives.
<i>EIA/EMP phase (November 2012 to August 2013)</i>	
<ul style="list-style-type: none"> • Assessment of potential environmental impacts • Design requirements and management and mitigation measures • Receive feedback on application 	<ul style="list-style-type: none"> • Compilation of EIA and EMP report. • Distribute EIA and EMP amendment report to IAPs and other regulatory authorities for review (January 2013). • Public feedback meetings with IAPs (if required) (February 2013). • Record comments (March 2013). • Forward IAP comments to DMR (March 2013). • Circulate record of decision to all registered IAPs (second half of 2013).

6.7.4 STAGES OF CONSULTATION WITH THE COMPETENT AUTHORITY IN EIA PHASE

Proposed consultation meetings for the EIA phase include:

- A site visit and meeting with DEDECT, DWA, DEA and DMR (if requested)
- A general authorities meeting at the end of the EIA phase to present the main findings of the EIA prior to submission of the EIA and EMP report.

6.7.5 PUBLIC INVOLVEMENT PROCESS IN EIA PHASE

The proposed public involvement process can be separated into focussed and general involvement. Each of these is described below:

Focussed involvement

As part of the various investigations that form part of the EIA tasks focussed meetings with certain IAPs will be held, as required. These meetings will be arranged and facilitated by SLR.

General involvement

As with the scoping report, full copies of the EIA and EMP report will be distributed to the agreed venues and summaries will be distributed to registered IAPs. Full copies of the report will also be provided electronically (on a CD) on request.

At the end of the review period, a round of public feedback meetings will be arranged (if required). The purpose of these meetings would be as follows:

- Provide IAPs with a final chance to submit comments on the EIA and EMP report
- Provide IAPs with an opportunity to discuss the outcomes of the EIA and EMP report.

All comments received from IAPs in the review period will be forwarded to the DMR.

Once the DMR, DEDECT and DEA have issued their respective decisions, the IAPs will be notified by e-mail and post in accordance with the instructions from the relevant departments.

7 SUMMARY AND CONCLUSIONS

The scoping phase of the EIA catering for the changes to surface infrastructure at the Sedibelo Platinum Mine has been completed. The potential impacts identified in this scoping report will be investigated by various studies to be conducted in the next phase of the EIA.

Linda Munro (Pr.Sci.Nat)
Project Manager

Alex Pheiffer (Pr.Sci.Nat)
Reviewer

8 REFERENCES

- Bohlweki, 2007: *Air Quality Impact Assessment for the Sedibelo Platinum Mining and Smelter Operation, North West Province*
- Department of Water Affairs and Forestry, 1996: *South African Water Quality Guidelines (1st Ed). Volume 1: Domestic Water Use*
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- Knight Piésold, 2007: *Sedibelo Platinum Project Environmental Impact Report*
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- North West Parks and Tourism Board (NWPTB) 2002: *Heritage park Concept Plan second edition*
- Pistorius, J. 2007: *A Phase 1 Heritage Impact Assessment Study for the Proposed New Sedibelo Platinum Mine Near the Pilaesberg in the North West Province of South Africa*
- Rubidge, B, 2011: *Magazynskraal project – Palaeontological Impact Assessment.*
- Synergy Global and Urban-Econ, 2007: *Sedibelo Platinum Mine Socio-economic Impact Assessment Report*
- Wits Commercial Enterprise and Natural Scientific Services, 2007: *Fauna and Flora Assessment for the Sedibelo Mining Project, North West.*

APPENDIX A: RELEVANT SECTIONS FROM NEMA APPLICATION

Note: to date, the NEM:WA application has not been submitted to the DEA.

APPENDIX B: INTERESTED AND AFFECTED PARTY DATABASE

APPENDIX C: DOCUMENTATION AND PROOF OF THE CONSULTATION PROCESS

- Correspondence with relevant authorities
- Proof of landowner notification
- Site notice in English and Tswana, and photographs showing the placement of site notices
- Advertisements
- Notification letter sent to IAPs and ward councilors
- Background Information Document (in English and Setswana)
- Initial meetings with BBKTA, Kgosanans, and Moses Kotane Local Municipality
- Scoping meeting minutes and attendance registers
- Completed registration forms / comments received
- Correspondence with representatives from the Lesetlheng community

APPENDIX D: ISSUES AND CONCERNS REPORT



RECORD OF REPORT DISTRIBUTION

Project Number:	B001-03
Title:	Changes to surface infrastructure at Sedibelo Platinum Mine
Report Number:	1
Proponent:	Itereleng Bakgatla Mineral Resources (Pty) Ltd

Name	Entity	No. of copies	Date issued	Issuer
Phumudzo Nethwadzi	Department of Mineral Resources	7	October 2012	L Munro
Livhuwani Kutame	Department of Economic Development, Environment, Conservation and Tourism (for information only)	1	October 2012	L Munro
Caroline Shai	Department of Water Affairs	1	October 2012	L Munro
Andrew Saloman	South African Heritage Resources Agency	1	October 2012	L Munro
Piet Theron	Department of Agriculture, Forestry and Fisheries	1	October 2012	L Munro
Jacqueline Nkosi	Department of Rural Development and Land Reform	1	October 2012	L Munro
Hennie Niehaus	Department of Public Works, Roads and Transport	1	October 2012	L Munro
Johnson Maoka	North West Parks and Tourism Board	1	October 2012	L Munro
Sandra Mafisa	Moses Kotane Local Municipality	2	October 2012	L Munro
Thami Matshego	Bojanala Platinum District Municipality	1	October 2012	L Munro
Mmusi Masilo	Bakgatla-Ba-Kgafela Tribal office	1	October 2012	L Munro
Chris Basson	Black Rhino Game Reserve	1	October 2012	L Munro
Setshedi Rasepae	Lesetlheng	1	October 2012	L Munro
Kgosana Ntshole	Manamakgoteng	1	October 2012	L Munro
Motsitsi Pilane	Lekutung	1	October 2012	L Munro
Tidimalo Kgatlhang	Sefikile / Spitskop	1	October 2012	L Munro
D Molefe	Mononono	1	October 2012	L Munro
Dan Segale	Kgamatha / Lesobeng	1	October 2012	L Munro
Mac Deatswana	Lekgraal / Bofule	1	October 2012	L Munro
Moses Mmankgaki	Ramasedi	1	October 2012	L Munro
Meme Moeng	Ntswana-le-Metsing	1	October 2012	L Munro
Kgosana Tlhabane Pilane	Motlhabe	1	October 2012	L Munro
Marks Mweletsi	Ngweding	1	October 2012	L Munro
TBC	Magalane	1	October 2012	L Munro
Mr. Leoto	Magong	1	October 2012	L Munro
Johanna Makau	Moruleng	1	October 2012	L Munro
To be confirmed	Department of Environmental Affairs	4	After public review	L Munro
Livhuwani Kutame	Department of Economic Development, Environment, Conservation and Tourism	5	After public review	L. Munro

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