

# MOKALA MANGANESE (PTY) LTD

## BACKGROUND INFORMATION DOCUMENT FOR THE DEVELOPMENT OF THE PROPOSED NEW MOKALA MANGANESE MINE

March 2015

### INTRODUCTION

Mokala Manganese (Pty) Ltd (Mokala) is proposing to establish a new opencast manganese mine on the remaining extent of the farm Gloria 266, located 4 km north-west of Hotazel in the Joe Morolong Local Municipality, Northern Cape Province (see Figure 1).

In broad terms the proposed Mokala Manganese project will comprise open cast activities, a dry crushing and screening plant, waste rock dumps, product and run-of-mine stockpiles, topsoil stockpiles, mine related facilities such as workshops, stores and various support infrastructure and services. Further to this, the proposed project will require:

- The diversion of the R380 road on the farm Kipling 271 as this road currently traverses the proposed project site
- Upgrading of the intersection on portion 1 of the farm Gloria 266
- The diversion of a section of the Ga-Mogara River. This diversion will extend onto the farm Umtu 281.

### ENVIRONMENTAL AUTHORISATION PROCESS

Prior to the commencement of the proposed project an environmental assessment is required, including an application phase, scoping phase, and an Environmental Impact Assessment (EIA) and Environmental Management Programme (EMP) phase. The assessment is required in terms of the Mineral and Petroleum Resources Development Act, 28 of 2002 and will be conducted in terms of the National Environmental Management Act (NEMA), 107 of 1998. Both laws apply because the proposed project involves the establishment of a new mine which incorporate a number of listed/identified activities from NEMA Regulations R983, R984 and R985. In addition to this, the proposed project will also require authorisation in terms of the National Water Act, 36 of 1998, and the National Environmental Management: Waste Act 59 of 2008.

SLR Consulting (South Africa) (Pty) Ltd (SLR), an independent firm of environmental consultants, has been appointed by Mokala to manage the environmental assessment process.

### PURPOSE OF THIS DOCUMENT

This document has been prepared by SLR to inform you about:

- \* The proposed project
- \* To provide information of the baseline environment
- \* The environmental assessment process to be followed
- \* Possible environmental impacts
- \* How you can have input into the environmental authorisation process.

### YOUR ROLE

You have been identified as an interested and affected party (IAP) who may want to be informed about the proposed project and have input into the environmental process and reports. You will be given the opportunity to provide input at public meetings, and also to review and comment on the following reports:

- \* Scoping Report
- \* EIA and EMP Report

All comments will be recorded and included in the applications to the relevant departments for decision-making.

### HOW TO RESPOND

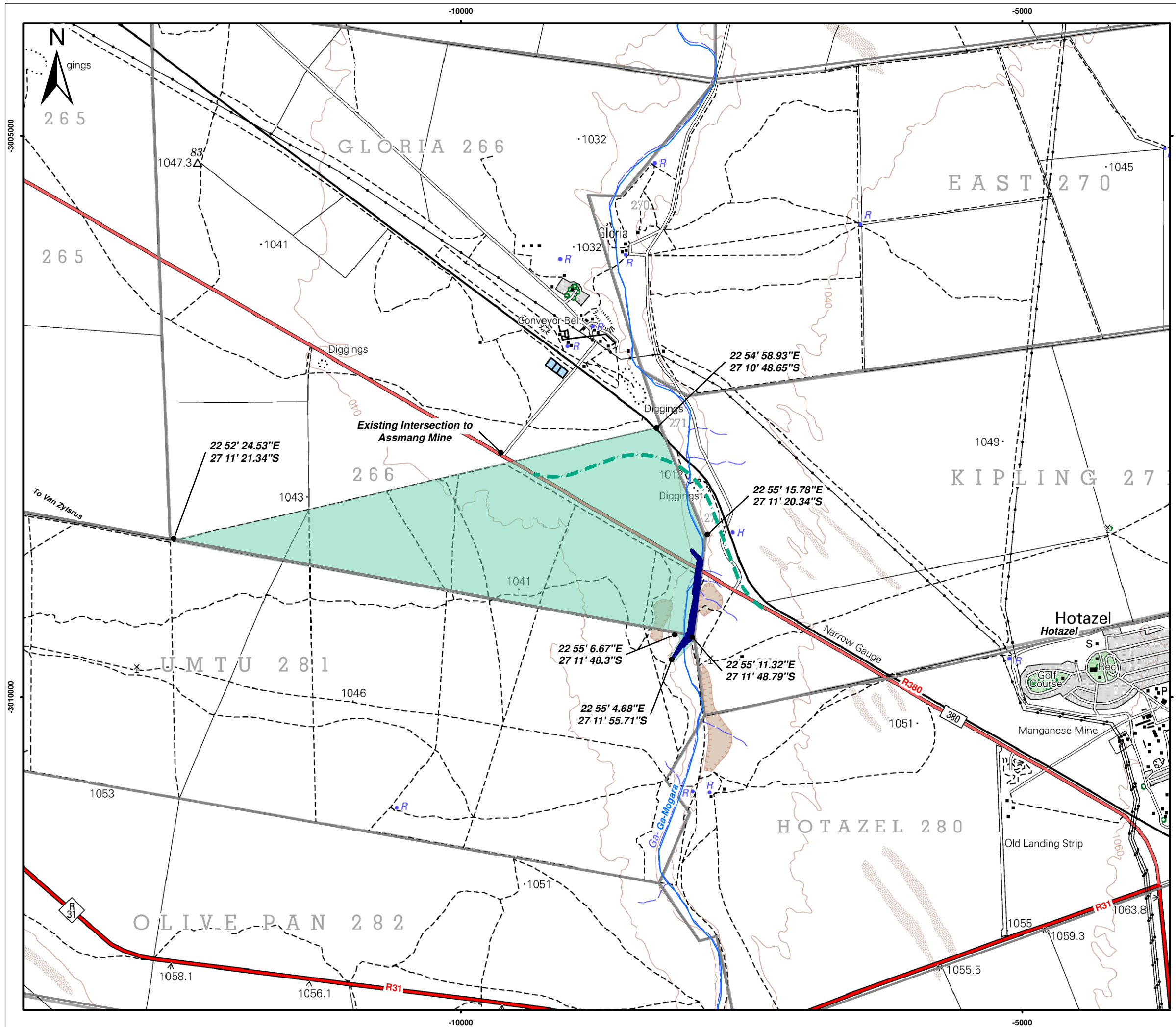
Responses to this document can be submitted by means of the attached comments sheet and/or through communication with the person listed below.

### WHO TO CONTACT

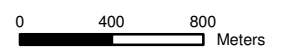
Natasha Daly and/or Masekantsi Rahab Rantsieng  
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### MOTIVATION FOR THE PROPOSED PROJECT

Mokala will produce various grades and sizes of manganese products to suit market demand. The anticipated market prices in the medium and long-term are considered to be favourable for project development. Furthermore, the project will create direct jobs and will have a positive impact on both indirect businesses and employment.



- Legend**
- Conceptual River Diversion
  - Proposed Road Re-Alignment
  - Rivers
  - Farm Boundaries
  - Approximate Area of Disturbance



Scale: 1:33 000 @ A3

Projection: Transverse Mercator  
Datum: Hartbeeshoek, Lo 23

MOKALA MANGANESE (PTY) LTD

**Figure 1**  
**Local Setting of Gloria Manganese Mine**



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## PROJECT OVERVIEW

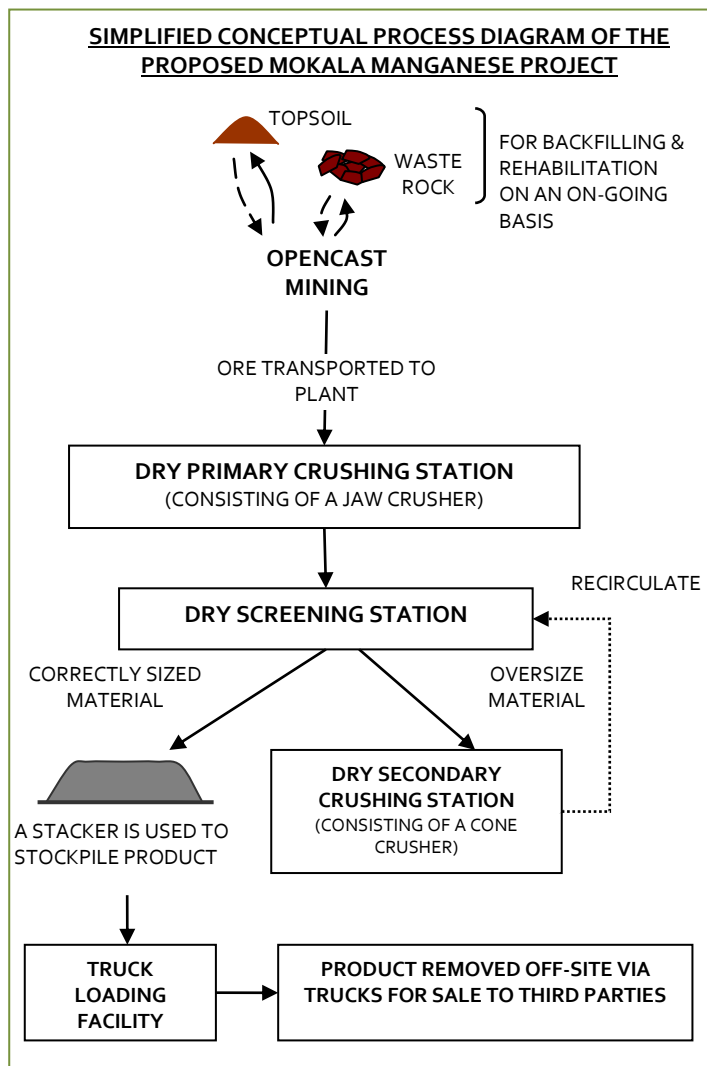
### MINING

The resource to be mined is the manganese ore body of the Kalahari Manganese field. It is planned to mine the ore body using conventional open pit methods which consist of blasting and haulage of ore via dump trucks. Topsoil and waste rock stripped during the mining operations will be used in the on-going rehabilitation process. It is anticipated that 1.3 million tonnes per annum of ore will be mined. It is important to note that in order to achieve these tonnages, Mokala is proposing to divert a section of the Ga-Mogara River to allow access to the underlying ore body.

### PROCESSING

Mined ore will be transported to the plant area and deposited on run-of mine stockpiles prior to being fed to through the plant. The plant will consist of a primary crusher station, screening station, secondary crusher station, product stacker and product stockpiles.

A simplified conceptual overview of the proposed process is below.



Further information on the project and alternatives considered will be given at the information sharing meetings.

## SERVICES

**Water:** Potable water will be made available from on-site boreholes and will be subjected to a reverse osmosis water treatment process prior to use. Process make-up water will be sourced from on-site boreholes, treated sewage effluent and/or water from pit dewatering (if available).

**Power:** Generators will be used as the primary power supply until such time as more Eskom power becomes available.

**Waste:** General and hazardous waste generated by the proposed project will be collected on site, temporarily stored in designated areas and disposed at off site permitted waste disposal facilities.

**Sewage:** All sewage will be treated in a sewage treatment facility to be established on site. The treated sewage effluent will be re-used within the process.

**Transport:** The transportation of materials to and from site will be by road. The existing R380 will be diverted as part of the proposed project. The existing intersection along the R380 leading to the Assmang Mine will be upgraded. Within the site boundary, haul roads, conveyors and pipelines will be used.

## STAFF AND HOUSING

**Job opportunities:** Approximately 321 construction jobs and 331 operational phase jobs.

**Operating times:** At this stage it can be assumed that the mine will be operational 24 hours a day and 5½ days a week (Monday to Friday and half of Saturday).

**Housing:** No contractors will be housed on-site.

## SUPPORT FACILITIES

Other facilities required on site include:

- \* Material storage and handling areas (Run-of mine, product stockpiles, fuel, lubricants, process materials, general and hazardous substances, explosives)
- \* Water management (clean and dirty water dams, clean and dirty storm water controls)
- \* Communication and lighting facilities
- \* Offices, change houses, ablutions, security facilities.

## TIMING

If approved, construction will commence in 1<sup>st</sup> quarter of 2016 with mining and processing activities reaching full production in 2017.

Planned life of mine – approximately 15 years

## ALTERNATIVES BEING CONSIDERED

The process of considering alternatives is on-going and will form part of the scoping and EIA phases of the environmental assessment process.

Alternatives will be considered for the proposed project footprint, water supply and mining extent.

## STATUS OF THE EXISTING ENVIRONMENT

This section provides a basic description of the existing status of the environment.

**Geology:** The proposed project site is located in the Kalahari Basin which is a manganese hotazel iron formation. The Kalahari basin is approximately 56 km and has a width varying between 5 and 20 km.

**Climate:** The proposed project area is located in the northern steppe climatic zone which is a semi-arid region characterised by seasonal rainfall (October to April), hot temperatures in summer, and cold temperatures in winter. Average annual precipitation ranges from 386 mm to 455 mm with rainfall generally in the form of thunderstorms. The prevailing wind direction is from the southeast with a high frequency of strong wind also occurring from the north and northwest.

**Topography:** The proposed project area is located in a relatively flat area with gentle slopes. The elevation on site varies from 1087 m to 1107 m above mean sea level (mamsl).

**Soils and land capability:** Soils types are homogeneous in terms of texture, structure, and soil depth and consist of sandy, red and yellow soils of the Hutton and Plooyburg forms. Soils at the proposed project site have a low cultivation potential due to the high infiltration rates associated with sandy soils. Due to the fine sandy nature of the soil forms and the low clay content and limited organic matter, the soils are highly erodible, particularly where vegetation is removed.

**Land use:** Land uses surrounding the mine include a combination of livestock grazing, game farming, mining and associated rail network and sparsely situated residences.

**Animal life:** Several bird and mammal species are likely to occur on site. These include the Northern Black Korhaan, the Longbilled lark, the Grey hornbill, Chat Flycatcher, Steenbok, Duiker, Suricate, White-tailed Mongoose, Molerat, and ground squirrels. It should be noted that the animal life population in the surrounding area in general has been disturbed due to the existing mining activities and pre-mining activities such as farming and prospecting.

**Plant life:** The proposed project area falls within the Kathu Bushveld and the Gordonia Duneveld and consists of five habitat/vegetation types. These habitat/vegetation types include the Mixed *Acacia* Savannah, *Acacia mellifera* Mixed Woodland, *Acacia haematoxylon* Savannah, *Tarchonanthus camphoratus* Scrub and Riverine Vegetation. Protected tree species in terms of the National Forests Act of 1998 (Act 84 of 1998) include *Acacia erioloba* (Camel Thorn) and *Acacia haematoxylon* (Grey Camel Thorn).

**Surface water:** The proposed project site is located in quaternary catchment D41K which has a gross total catchment area of 4216 km<sup>2</sup>, with a net mean annual run-off of 1.92 million cubic meters (mcm). The non-perennial Ga-Magara River is located on the eastern boundary of the proposed project area and flows in a northerly direction to the Kuruman River.

**Groundwater:** Two aquifers are present within the proposed project area, namely a shallow aquifer comprising Kalahari sands, residual Dwyka Tillite and dolomite and a deeper aquifer comprising the Ore body and underlying lavas. The average ground water level at the proposed project site ranges from 30m to 90m below ground level. Groundwater quality is generally poor due to high levels of mineralisation associated with long residence times, dissolution of minerals in the Kalahari Sands.

**Air quality:** The surrounding ambient air quality has been influenced by neighbouring mines, household fuel combustion, vehicle tailpipe emissions and rail related fuel combustion.

**Noise:** The greater area is generally defined by rural features and is not subjected to elevated noise levels. Existing noise in the project area is mainly caused by surrounding farming activities, localised traffic, train movements and mining operations.

**Visual:** The proposed project site is located within the flat open plains of the Kalahari. The site is rural in nature however the existing surrounding mining operations located to the south and north of the proposed project site have somewhat already affected the sense of place and natural visual character of the area.

**Heritage/cultural and palaeontological resources:** No significant heritage/cultural and palaeontological resources have been found to occur within the proposed project area.

**Socio-economic:** The town of Hotazel and the residence of the Gloria Mine are located within a 4km radius of the proposed project site. The educational levels in the area are relatively low. There is a high level of unemployment with a dependency on subsistence agriculture, the public sector, seasonal workers and employment in the mining sector. Water provision and sanitation remains a challenge, mostly in the rural areas. There has been an increase in the number of households that were provided with electricity as a source of energy in the area. Mining and government services are the main economic sectors.



## POTENTIAL ENVIRONMENTAL IMPACTS

The following preliminary list of potential impacts has been identified and will be investigated as part of the environmental assessment process.

**Loss and sterilisation of mineral resources:** The proposed project has the potential to result in the loss and sterilisation of mineral resources through the placement of infrastructure in close proximity to a mineable resource.

**Safety:** The proposed project has the potential to alter the topography and present infrastructure and excavations which may present potential safety risks for both people and animals.

**Soil and land capability:** The proposed project has the potential to compromise soil resources through physical disturbance (erosion and compaction) and/or pollution, by the placement of infrastructure and mining activities. Loss of soil resources has a direct impact on the natural capability of the land.

**Biodiversity:** The placement of infrastructure and mining activities has the potential to disturb and/or destroy vegetation, habitat units and related ecosystem functionality, including the disturbance of protected species.

**Surface water:** The proposed project has the potential to alter surface drainage patterns through the placement of infrastructure and the diversion of a portion of the Ga-Mogara River; and to pollute surface water resources.

**Groundwater:** The proposed project has the potential to contaminate groundwater resources and to lower groundwater levels through abstraction which could impact availability to surrounding groundwater users.

**Air:** The proposed project has the potential to emit pollution into the air which could have a negative impact on ambient air quality.

**Blasting:** The proposed project requires blasting which has the potential to impact people and structures through fly rock, air-blast and ground vibrations.

**Noise:** The proposed project has the potential to cause noise pollution through the presence of mining infrastructure and activities.

**Visual:** The placement of infrastructure and mining activities has the potential to create visual impacts through topographical changes.

**Heritage/cultural and palaeontological resources:** Even though no such resources have been identified on site, the proposed project has the potential to damage heritage/cultural and palaeontological resources should there be any chance finds.

**Land use:** The proposed project has the potential to impact on surrounding land uses such as livestock grazing, game farming and sparsely situated residences.

**Socio-economic:** The proposed project has the potential to contribute towards positive and negative socio-economic impacts. Positive impacts include job creation and stimulation of local and regional economy. Negative socio-economic impacts include the influx of job seekers and related issues of crime, disease and disruption to social structures.

## ENVIRONMENTAL AUTHORISATION PROCESS

The environmental process provides information on the project and environment in which it is being undertaken; identifies, in consultation with interested and/or affected parties (IAPs), the potential negative as well as positive impacts of the project; and reports on management measures required to mitigate impacts to an acceptable level. The likely process steps and timeframes are provided below. IAPs and other stakeholders registered on the project's database will receive notification of information-sharing meetings and report review periods in advance.

STEPS IN THE AUTHORISATION PROCESS
<b>PHASE I – Scoping phase (August 2014 to April 2015)</b> <ul style="list-style-type: none"> <li>Notify other regulatory authorities and IAPs of project and environmental assessment (via social scan, newspaper advertisements, site notices and this document)</li> <li>Scoping information-sharing meeting(s) with regulatory authorities (if required) and IAPs</li> </ul>
<b>PHASE II – Application and scoping phase (April 2015 to July 2015)</b> <ul style="list-style-type: none"> <li>Submission of applications to the DMR.</li> <li>Compile scoping report and submit to DMR, IAPs and other authorities for review.</li> <li>Public review of scoping report (30 days)</li> <li>Submit scoping report including IAP comments to the DMR.</li> </ul>
<b>PHASE III – EIA and EMP phase (August 2015 to February 2016)</b> <ul style="list-style-type: none"> <li>Complete specialist studies</li> <li>Compile EIA and EMP report and submit to DMR, IAPs and other authorities for review</li> <li>Compile water use license application and submit to the department of water affairs</li> <li>Compile waste management license application and submit to the DMR</li> <li>Public review of EIA and EMP report (30 days)</li> <li>Submit EIA and EMP report including IAP comments to the DMR</li> <li>Circulate decision to IAPs registered on the project database.</li> </ul>

## PARTIES INVOLVED IN THE ENVIRONMENTAL ASSESSMENT PROCESS

### IAPs

- \* Surrounding landowners, land users and communities
- \* Surrounding mines and industries
- \* Non-governmental organisations and associations
- \* Parastatals

### REGULATORY AUTHORITIES

- \* National Department of Environment Affairs (DEA)
- \* Northern Cape Department of Water and Sanitation (DWS)
- \* Department of Environment and Nature Conservation (DENC)
- \* Department of Mineral Resources (DMR)
- \* South Africa Heritage Resource Agency (SAHRA)
- \* Department of Agriculture, Land Reform and Rural Development (DALRRD)
- \* Northern Cape Department of Roads and Public Works (DRPW)

### LOCAL AUTHORITIES

- \* Joe Morolong Local Municipalities
- \* John Taolo Gaetsewe District Municipality

Please let us know if there are any additional parties that should be involved.

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**BACKGROUND INFORMATION DOCUMENT FOR THE DEVELOPMENT OF THE PROPOSED NEW MOKALA MANGANESE**  
**MINE BACKGROUND INFORMATION DOCUMENT**

**REGISTRATION AND RESPONSE FORM FOR INTERESTED AND AFFECTED PARTIES**

<b>DATE</b>		<b>TIME</b>	
<b>PARTICULARS OF THE INTERESTED AND AFFECTED PARTY</b>			
<b>NAME</b>			
<b>POSTAL ADDRESS</b>			
		<b>POSTAL CODE</b>	
<b>STREET ADDRESS</b>			
		<b>POSTAL CODE</b>	
<b>WORK/ DAY TELEPHONE NUMBER</b>		<b>WORK/ DAY FAX NUMBER</b>	
<b>CELL PHONE NUMBER</b>		<b>E-MAIL ADDRESS</b>	

**PLEASE IDENTIFY YOUR INTEREST IN THE PROPOSED PROJECT**

**PLEASE WRITE YOUR COMMENTS AND QUESTIONS HERE**

**Please return completed forms to:**

**Natasha Daly and/or Masekantsi Rahab Rantsieng**

**SLR Consulting (Africa) (Pty) Ltd**

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