

TSHIPI É Ntle MANGANESE MINING (PTY) LTD

BACKGROUND INFORMATION DOCUMENT FOR THE DEVELOPMENT OF KHWARA, A PROPOSED NEW UNDERGROUND MANGANESE MINE

JANUARY 2017

INTRODUCTION

Tshipi é Ntle Manganese Mining (Pty) Ltd (Tshipi) currently holds a prospecting right for manganese on portion 2 of the farm Wessels 227 and the remaining extent and portion 3 and 4 of the farm Dibiaghomo 226, north of Black Rock in the Northern Cape Province. On the adjacent farm (Portion 1 of Lehating 741), Lehating Mining (Pty) Ltd (Lehating) holds the mining right and have an approved environmental management programme (EMP) from the Department of Mineral Resources (DMR) for manganese and iron (approved October 2013). Lehating also hold an environmental authorisation (EA), issued by the Department of Environment and Nature Conservation (DENC) in September 2014 in terms of the National Environmental Management Act, 107 of 1998 (NEMA).

Tshipi is planning to apply to the DMR for a mining right over the above portions of the farms Wessels 227 and Dibiaghomo 226, referred to as the Khwara Mine Project. The resource will be accessed and mined from the Lehating mine (underground). Approved surface infrastructure at the Lehating Mine will be used to support the mining of the underground resource on the farms Wessels 227 and Dibiaghomo 226 and as such no surface infrastructure will be established as part of the proposed project. Refer to figure 1 for the local setting of the proposed project.

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 incorporates a listed activity in terms of the 2014 NEMA Regulation R984. In addition to this, the proposed project will also require a water use license in terms of the National Water Act, 36 of 1998.

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

PURPOSE OF THIS DOCUMENT

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

- * The proposed project
- * The baseline environment of the project area
- * 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/or affected party (IAP) who may want to be informed about the proposed project and have input into the environmental process and reports.

You have an opportunity to review this document and to provide your initial comments to SLR for incorporation in the environmental assessment process.

You will also be given the opportunity to provide input at public meetings, and to review and comment on the following reports:

- * Scoping Report
- * EIA and EMP Report (EMPr)

All comments will be recorded and included in the reports submitted to the DMR for decision-making.

HOW TO RESPOND

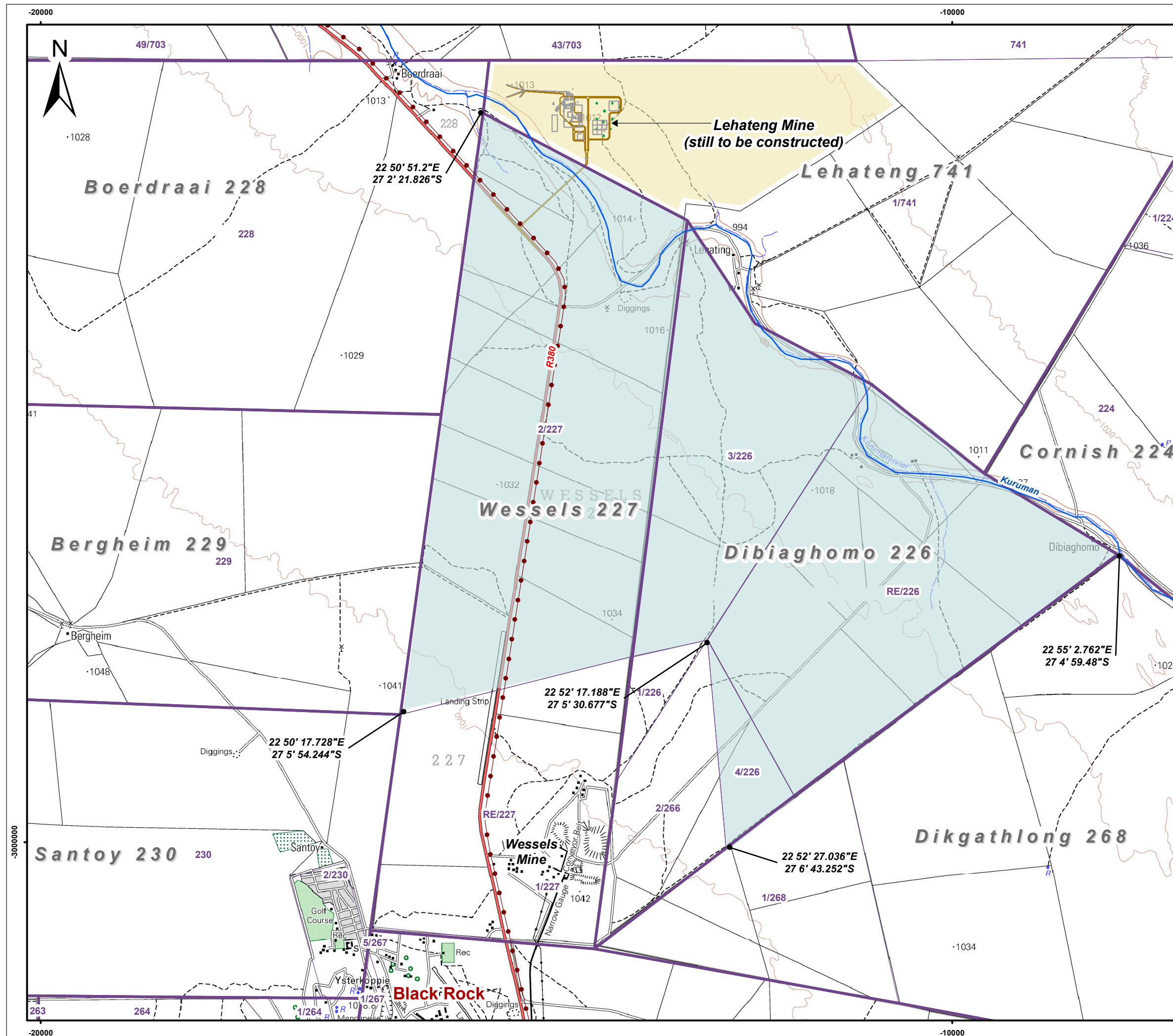
Responses to this document can be submitted by means of the attached comments sheet and/or through communication with the person listed below.

WHO TO CONTACT

Natasha Smyth and/or William Berry
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wberry@slrconsulting.com

MOTIVATION FOR THE PROPOSED PROJECT

The Khwara mine 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 allow for the continuation of jobs and will have a positive impact on both indirect businesses and employment.



- Legend**
- Proposed Mining Right Area
 - Approved Lehateng Mining Right Area
 - Main Roads
 - Secondary Roads
 - Power Line
 - Rivers and Streams
 - 20m Contour Lines
 - Farm Boundaries
 - Farm Portions

0 1 2 Kilometers

Scale: 1 : 41 000 @ A3

Projection: Transverse Mercator
Datum: Hartbeeshoek, Lo23

TSHIPI É NTLE MANGANESE MINING
(PTY) LTD

Figure 1
Local Setting

SLR

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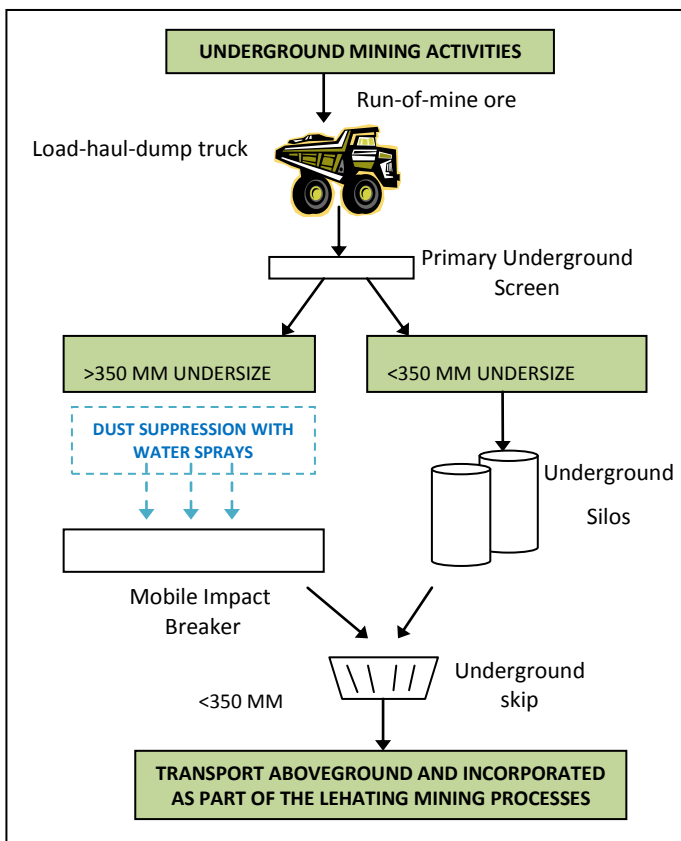
PROJECT OVERVIEW

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 underground mining methods. In this regard, the mining will include the trackless mechanised bord and pillar mining technique. This technique is typical in the Kalahari Manganese Field and is used in all wide body mines from the perspectives of safety and productivity. It is anticipated that 0.55 million tonnes per annum of ore will be mined as part of the proposed project. The ore body is located at a depth of 250m to 350m meters with a thickness of approximately 5m to 9m.

CONCEPTUAL FLOW DIAGRAMME

Access to the underground workings will be via the approved Lehating vertical shaft. The proposed project does not require the development of any surface infrastructure and as such, approved facilities associated with the Lehating mine will be utilised to crush and screen the ore material prior to sale to third parties. The conceptual flow diagramme associated with the proposed project is illustrated below.



PROJECT ALTERNATIVES

Given that no surface infrastructure will be established as part of the proposed project, no layout alternatives are being considered. No mining method alternatives are being considered due to the depth of the ore body. In addition to this, no service/technology alternatives are being considered as approved facilities at the Lehating mine will be utilised. It follows that no alternatives will be considered as part of the proposed project.

SUPPORT SERVICES

Support services for the proposed project will be sourced from the Lehating Mine. Further information regarding support services is provided below.

SERVICES

Services sourced and used from the Lehating Mine include:

- **Water:** Potable, fire water and process water for underground workings will be sourced from boreholes and dewatering activities and will be piped to the underground workings.
- **Power:** Power will be sourced from generators until such time as power can be sourced from Eskom.
- **Waste:** General and hazardous waste will be temporary stored in designated areas and disposed at off site permitted waste disposal facilities. Mineralised waste will be disposed on waste rock dumps and the tailings facility at the Lehating mine.
- **Sewage:** Sewage will be treated at the sewage treatment plant. Treated sewage effluent will be used for dust suppression along haul roads. Sludge will be stored in sludge drying beds for removal off-site by a certified contractor or will be used as part of rehabilitation.
- **Transport:** Access will be via the access road to the Lehating Mine. The transportation of ore from site will be via trucks that forms part of the Lehating transportation system. In addition to this, a network of pipelines will be established in order to transport any water to and from the underground workings.

STAFF AND HOUSING

Job opportunities: Employees from the Lehating Mine will be utilised. The Khwara project will allow for the continuation of employment. No new employment opportunities envisaged.

Operating times: Underground mining activities will take place 24 hours a day, seven days a week.

Housing: No housing will be provided during the operational phase. Operational workers will be accommodated in nearby towns, such as Black Rock, Hotazel, Kathu and Kuruman.

SUPPORT FACILITIES

Other support facilities at the Lehating mine that will be utilised include the following:

- * 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 of underground activities will commence in 1st quarter of 2018 with mining activities reaching full production in 2022.

The planned life of mine is approximately 26 years.

STATUS OF EXISTING ENVIRONMENT

This section provides a basic description of the existing status of the proposed project area.

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 project area falls within the Northern Steppe climatic zone, which is a semi-arid region characterised by erratic rainfall, high evaporation levels, hot summers and cold winters. The annual rainfall is less than 400mm.

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 and land use: Comprises structureless, deep (>1 200 mm), sandy, red and yellow soils of the Hutton and Clovelly 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 uses surrounding the mine include a combination of livestock grazing, game farming, mining and associated and sparsely situated residences.

Plant and animal life (terrestrial): The proposed project area falls within the Kathu Bushveld and the Southern Kalahari Mekgacha. The Kathu Bushveld is characterised by open savannah with *Vachellia erioloba* (Camel thorn) and *Boscia albitrunca* (Shepherd's tree) as the prominent trees. Tall *Vachellia erioloba* trees can form a dominant belt along a river. *Vachellia erioloba* are protected in terms of the National Forests Act of 1998. Very little evidence of wild faunal populations is associated with the proposed project area due to the presence of mining, prospecting and farming activities within and surrounding the proposed project site. Red data bird species that are likely to occur within the proposed project area include the Martial Eagle, Secretary bird and the African Whitebacked Vulture. Red data mammal species likely to occur include the honey badger and the South African Hedgehog.

Aquatic environment: The Kuruman River is a National Freshwater Ecosystem Priority Area, Category B river (Largely natural with few modifications) and is an important groundwater recharge area. The riparian vegetation community is dominated by *Grewia flava*, *Vachellia karroo*, *Tragus racemosus*, *Schmidtia kalahariensis* and *Eragrostis* sp. and is clearly distinguished from the terrestrial community. Surface water flow was last documented within the Kuruman River in 1974. Only sub surface flow with isolated depressions with surface water has been documented. This is sufficient to support faunal aquatic communities after heavy rainfall events.

Surface water: The proposed project is located in quaternary catchment D41M which has a gross total catchment area of 13 780 km². The Kuruman River is located along the north eastern boundary of the proposed project site. Due to the ephemeral nature of the river there is no third party reliance of surface water resources.

Groundwater: The project area is underlain by a shallow unconfined Kalahari Aquifer and the deeper fractured Hotazel Aquifer. The average ground water level at the proposed project site ranges from 9m to 58m below ground level. Groundwater quality is generally poor due to elevated concentrations of chloride, sodium and magnesium. The dominant groundwater flow is in a north-western direction towards the Kuruman River. The majority of boreholes surrounding the proposed project area are used for domestic use and livestock watering purposes.

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

Noise: The greater area is generally defined by rural features and is not subjected to elevated noise levels. Noise levels in the project area are mainly as a result of surrounding farming activities, localised traffic 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 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: Heritage resources in the proposed project area include cemeteries and graves, historical farmsteads and structures, and sites dating back to Middle and Later Stone Age concentrated around the riverine edges. The palaeontological sensitivity of the site is low, although there is a possibility of Stromatolites being present in the project area.

Socio-economic: The town of Black Rock is located approximately 2.5km south of the proposed project area. The educational levels in the area are relatively low with a high level of unemployment and 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

Given that no surface infrastructure will be established as part of the proposed project, the proposed project will have no impact on climate, topography, soils, land capability, land use, plant and animal life, air, noise, visual and heritage/palaeontological resources. A preliminary list of potential impacts that have been identified and will be investigated as part of the environmental assessment process are discussed below.

Loss and sterilisation of mineral resources: Mineral resources can be sterilised and/or lost through the disposal of mineral resources onto mineralised waste facilities (waste rock stockpiles).

Biodiversity (Aquatic environment): Dewatering activities has the potential to disturb and/or destroy aquatic environments that provide a habitat for various species in the event that the lowering of groundwater levels influences sub-surface flow of the Kuruman River.

Surface water: In the event that the flow of water in the Kuruman river system is associated with sub-surface flow and an aquifer, dewatering activities could impact on the baseflow of the Kuruman River.

Groundwater: The proposed project has the potential to lower groundwater levels through dewatering which could impact availability to surrounding groundwater users.

Socio-economic: The proposed project has the potential to contribute towards positive and negative socio-economic impacts. Positive impacts include job continuation 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 a public meeting and report review periods in advance.

STEPS IN THE AUTHORISATION PROCESS

PHASE I - Pre-application phase (October 2016 to January 2017)

- Pre-application meeting with the DMR
- Notify other regulatory authorities and IAPs of project and environmental assessment (via social scan, newspaper advertisements, site notices and this document)

- Scoping public meeting(s) with regulatory authorities (if required) and IAPs

PHASE II –Scoping phase (January to April 2017)

- Submission of NEMA and mining right application to the DMR.
- Compile scoping report and submit to the DMR, IAPs and other authorities for review.
- Public review of scoping report (30 days)
- Update the scoping report with any comments received during the review period
- Submit updated scoping report to the DMR.
- Review of the scoping report by the DMR (43 days)
- DMR either accepts the scoping report or refuses the environmental authorisation

PHASE III – EIA and EMP phase (January to October 2017)

- Complete specialist studies
- Compile EIA and EMPr and submit to DMR, IAPs and other authorities for review
- Public review of EIA and EMPr (30 days)
- Update the EIA and EMPr report with any comments received during the review period
- Submit updated EIA and EMPr to the DMR
- Review of the EIA and EMPr by the DMR (107 days)
- Circulate decision to IAPs registered on the project database.

PHASE IV – Water Use License Application phase (November 2017 to January 2018)

- Compile water use license application and submit to the Department of Water and Sanitation

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

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

LOCAL AUTHORITIES

- * Joe Morolong Local Municipalities (includes ward councillor)
- * 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 UNDERGROUND
MANGANESE MINE

REGISTRATION AND RESPONSE FORM FOR INTERESTED AND AFFECTED PARTIES

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

PLEASE IDENTIFY YOUR INTEREST IN THE PROPOSED PROJECT

PLEASE WRITE YOUR COMMENTS AND QUESTIONS HERE

Please return completed forms to:

Natasha Smyth and/or William Berry
 SLR Consulting (South Africa) (Pty) Ltd
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