# TSHIPI É NTLE MANGANESE MINING (PTY) LTD
## BACKGROUND INFORMATION DOCUMENT

## ALTERNATIVE CLOSURE AND REHABILITATION OPTIMISATION PROJECT AT THE TSHIPI BORWA MINE
## JUNE 2019

### INTRODUCTION

Tshipi é Ntle Manganese Mining (Pty) Ltd (Tshipi) operates the Tshipi Borwa Mine located on the farms Mamatwan 331 and Moab 700, located approximately 18 km to the south of Hotazel in the John Taolo Gaetsewe District Municipality in the Northern Cape Province (refer to Figure 1). Tshipi currently holds the following material authorisations:

- A mining right (NC/30/5/1/2/2/0206MR) issued by the Department of Mineral Resources (DMR);
- An Environmental Management Programme report (EMPr) approved by the DMR, as amended;
- An environmental authorisation (NC/30/5/1/2/2/206/000083 EM) issued by the DMR; and
- A Water Use Licence (IWUL) (10/D41K/AGJ/1735) issued by the Department of Water and Sanitation.

The approved EMPr commits Tshipi to restore the surface to pre-mining state of wilderness and grazing and requires that the open pit is backfilled. Recent operation optimisation investigations indicate completely backfilling the open pit is sub-optimal when considering environmental, socio-economic, technical, commercial and legal factors. Tshipi is therefore proposing to change the current closure commitment to achieve a more sustainable and optimised outcome.

### ENVIRONMENTAL AUTHORISATION

Prior to the commencement of the proposed project, the following is required:

- An environmental authorisation from the DMR in terms of the National Environmental Management Act No. 107 of 1998. The Environmental Impact Assessment Regulations being followed are Government Notice Regulation (GNR) 982 of 4 December 2014, as amended. A listed activity in terms of Listing Notice 1 GNR 983 will be triggered as part of the proposed project and as such a Basic Assessment Process will be followed.

### PURPOSE OF THIS DOCUMENT

This document has been prepared by SLR Consulting (Africa) (Pty) Ltd (SLR) to inform you about:

- The proposed project
- The baseline environment of the current project area
- The environmental assessment process being followed (Basic Assessment Process)
- Possible environmental/cultural/socio-economic impacts
- How you can participate in and have input into the environmental assessment process.

SLR, an independent firm of environmental consultants, has been appointed by Tshipi to manage the environmental assessment process.

### YOUR ROLE

You have been identified as an interested and/or affected party (I&AP) who may want to be informed about the proposed project and have input into the Basic Assessment process.

You have an opportunity to review this document and provide your initial comments to SLR for incorporation in the Basic Assessment process. You will also be given the opportunity to provide input through review and comment on the Basic Assessment Report.

**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
(011) 467 0945 (Tel) or (011) 467 0978 (Fax) or
nsmyth@slrconsulting.com

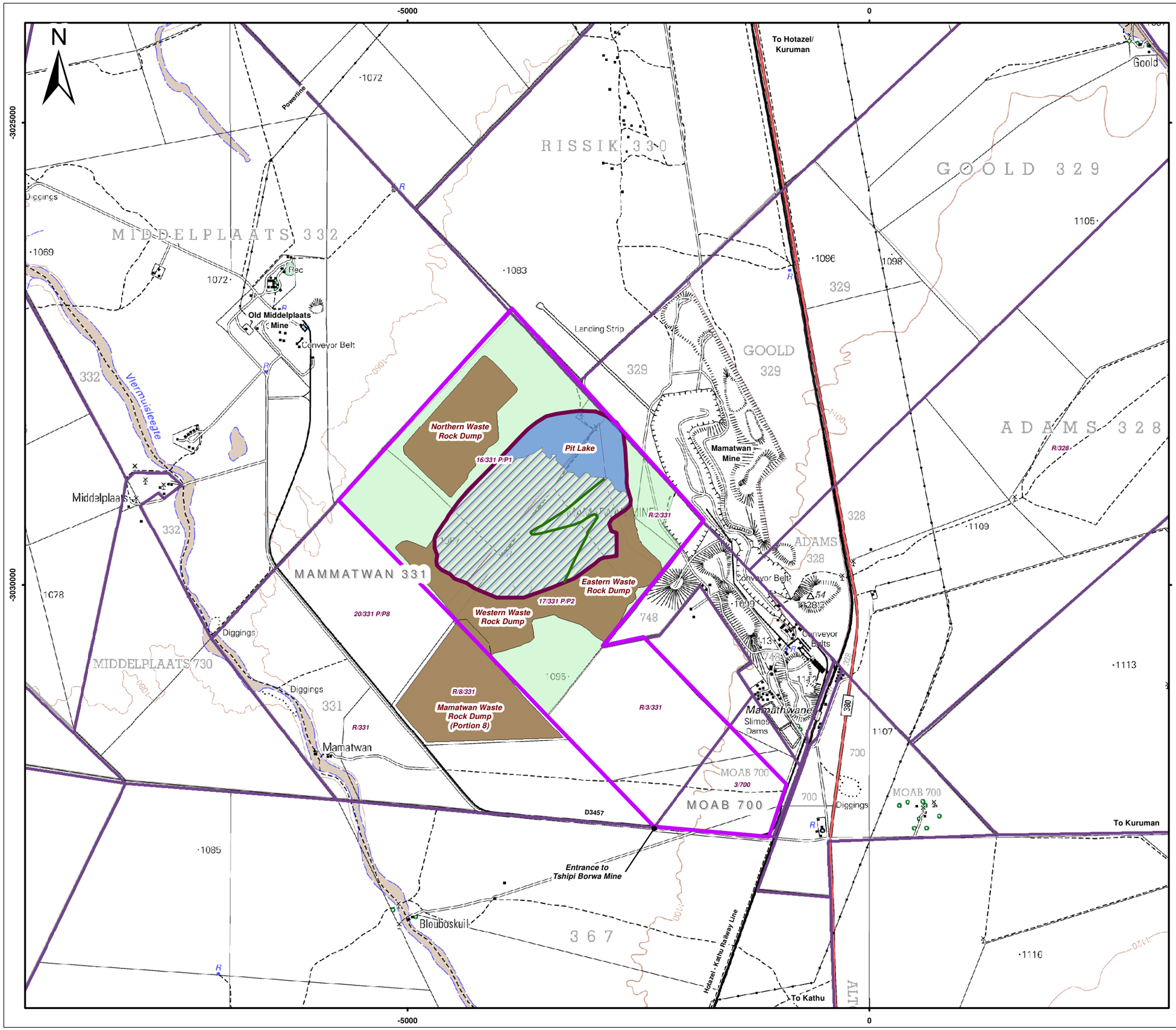
### PUBLIC MEETING

A public meeting has been arranged as part of the public participation process:

**Venue:** Sishen Golf and Country Club(Gemsbok Conference room- Main Club) (Hans Coetzee street, Kathu)

**Time:** 10h00

**Date:** 26 June 2019




## Legend

- Tshipi Surface Use Area
- Tshipi Mining Right Area
- Open Pit
- Concurrent In-Pit Dumping
- Waste Rock Dumps
- Access Road
- Main Roads
- Power Line
- Rivers and Streams
- 20m Contour Lines
- Farm Boundaries
- Farm Portions

0 500 1 000 Meters

Scale: 1:40 000 @ A3

Projection: Transverse Mercator
Datum: WGS1984, Lo23

Tshipi é Ntle Manganese Mining (Pty) Ltd

**Figure 1**

**Local Setting**

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| 710.20008.00069 | 2019/06/07 |
|---|---|

## PROJECT OVERVIEW

### OVERVIEW AND PROJECT MOTIVATION

Tshipi currently operates the Tshipi Borwa (manganese) Mine located on the farms Mamatwan 331 (mining right and surface use areas) and Moab 700 (surface use area) (Figure1). Key mine infrastructure includes an open pit, haul roads, run-of mine ore tip, a primary crusher, a secondary crushing and screening plant, various stockpiles for crushed and product ore, a train load-out facility, a private siding, offices, workshops, warehouses and ancillary buildings, an access control facility, various access roads, diesel generator house, electrical reticulation, clean and dirty water storage dams, water reticulation pipelines and drains, topsoil stockpiles and waste rock dumps. The mine has an anticipated life of mine of approximately 25 years and has been operational for seven years.

The approved EMPr commits Tshipi to restore the surface to pre-mining state of wilderness and grazing and requires that the open pit is backfilled. Recent operation optimisation investigations indicate that when considering environmental, socio-economic, technical, commercial and legal factors, completely backfilling the open pit is sub-optimal for the following reasons:

- The opportunities for enhanced biodiversity habitats with a different backfill approach particularly in terms of topographic variety and access to surface water;
- The opportunities for enhanced land use increase with access to surface water;
- An alternative closure option will allow for earlier rehabilitation of waste rock dumps; and
- Completely backfilling the open pit is likely to sterilise an underground resource located to the north of the current approved open pit. The associated loss of employment, procurement, taxes and foreign exchange earnings is significant and will be a material net loss to the region and the country.

Tshipi is therefore proposing to change the current closure commitment (complete backfill of the open pit) to concurrent in-pit dumping. In this regard, the proposed project focusses on:

- Concurrent backfill only i.e. in-pit dumping during mining operations only;
- Sloping and rehabilitation of waste rock dumps remaining on surface;
- Access to readily available future water supply; and
- Optimisation of the surface landforms and partially backfilled pit from a biodiversity, rehabilitation, land use and pollution prevention perspective.

### CONCEPTUAL ALTERNATIVES CONSIDERED

The alternatives considered for the closure and rehabilitation optimisation project include:

- **Complete backfill:** Backfill of the final pit void post mining to original ground level, before rehabilitation of the surface as per the current approved EMPr
- **Partial backfill:** Backfill of the final pit void post mining to a level just above the rebound water-table level, approximately 50m below original ground level, before rehabilitation of the surface.
- **Concurrent backfill (In-pit dumping):** Backfill of the pit void concurrent with mining only, also called in-pit dumping, which results in a final pit void which will be 'made safe' (profiled) before rehabilitation of the surface.
- **No backfill:** No backfill of the pit either concurrent with mining or post mining i.e. all waste rock to surface dumps. The pit side-walls and end-walls will only be 'made safe'.

The alternatives have been considered with input from specialists (where relevant). Specialist findings have indicated that concurrent backfill i.e in-pit dumping is the optimal option from an environmental, socio-economic, technical and commercial perspective. The detailed alternatives assessment will be provided in the BAR.

## BASELINE OVERVIEW

Below is a basic description of the existing status of the environment:

#### Geology:

The Tshipi Borwa Mine falls in the Kalahari Manganese Field and is covered by gravels, clays, calcretes and aeolian sands of the Kalahari Group.

#### Climate:

The Tshipi Borwa Mine falls within the Northern Steppe Climatic Zone. It is a semi-arid region characterised by seasonal rainfall, hot temperatures in summer, and colder temperatures in winter. Rainfall ranges from 1.3 mm to 72.3 mm per month and winds from the north, north-east are dominant in the area.

#### Topography:

The Tshipi Borwa Mine is located in a relatively flat area with gentle slopes. The natural surrounding and on-site topography has been influenced by existing mining activities.

**Soils and land capability:**

Soils at the Tshipi Borwa Mine comprise structureless, deep (>1 200 mm), sandy, red and yellow soils of the Hutton form. In the absence of irrigation, Soils at the mine 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. Soil resources and related land capability have been influenced by existing mining activities.

**Animal life:**

Limited evidence of wild faunal populations is associated with the proposed project area due to the presence of mining, prospecting and farming activities. 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.

**Plant life:**

The Tshipi Borwa Mine falls within the Kathu Bushveld and the Griqualand West Centre of Endemism. The protected *Vachellia erioloba* (Camel Thorn) and *Vachellia haematoxylon* (Grey Camel Thorn) occur at the Mine. The plant population at the mine has already been disturbed by existing mining activities.

**Surface water:**

The Tshipi Borwa Mine falls within the catchment of the Ga-Mogara River, a tributary of the Kuruman River and flows into the Orange River. Runoff from Tshipi drains west towards the Vlermuisleegte River that only flows during high rainfall events. There is no third-party reliance on surface water. No wetlands are located in the area. Existing mining activities have influenced the natural drainage patterns on site and the related contributions of runoff to the catchment.

**Groundwater:**

The Tshipi Borwa Mine is underlain by a shallow unconfined Kalahari Aquifer and the deeper fractured Hotazel Aquifer. The average ground water level at the mine ranges from 41 to 74 metres below ground level. The majority of third-party boreholes surrounding the mine are used for livestock watering purposes.

**Air quality:**

Ambient air quality has been influenced by mines, household fuel combustion, vehicle tailpipe emissions and agricultural activities.

**Noise:**

The greater area is generally defined by rural features. Noise levels near the Tshipi Borwa Mine are mainly as a result of surrounding farming activities, localised traffic and mining operations.

**Visual:**

The area southwest, north and west of the Tshipi Borwa Mine can be described as a flat open area with drainage lines and open views of bushveld which are visually dominant and has a high visual value. Areas to the north and east of the Tshipi Borwa Mine are considered to have a low visual value due to the presence of neighbouring mines (Mamatwan Mine and United Manganese of Kalahari (Pty) Ltd), infrastructure (road, rail and powerlines) and the Adams solar park. The disturbed areas within the mine's surface use area have a low visual value.

**Heritage/cultural resources:**

No heritage/cultural sites have been identified at the Tshipi Borwa Mine. 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 Hotazel is located approximately 18m north of the Tshipi Borwa Mine. 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.

**Land use:**

Land uses surrounding the Tshipi Borwa Mine include a combination of livestock grazing, game farming, mining, a solar farm and sparsely situated residences. Land use at the Mine has been influenced by existing mining activities.

## POTENTIAL ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS AND RELATED SPECIALIST INPUT

Potential impacts that have been identified and will be investigated as part of the environmental impact assessment process are tabulated below. Where specialist input is required this has been indicated in the table below.

| Aspect | Potential environmental and socio-economic impacts | Specialist input (where required) |
|---|---|---|
| **Biophysical** | | |
| Soils and land capability | • With access to future readily available water supply, the proposed project has the potential to promote the optimal use of soil resources to enhance alternative land uses (eg. agriculture). | Terra Africa |
| Biodiversity - Aquatic | • The proposed project has the potential to create and enhance aquatic habitats through the availability of a functional pit lake, which in turn may increase biodiversity complexity, diversity, community sensitivity and overall community stability. | Scientific Aquatic Services CC |
| Biodiversity – Terrestrial | • The proposed project has the potential to increase faunal and floral species populations by re-creating a terrestrial habitat through access to a functional pit lake, that otherwise would have been limited as a result of the lack of stable freshwater habitats. | Scientific Terrestrial Services CC |
| Surface water | • The proposed project has the potential to provide access to a readily available future water supply (pit lake) which may be used for an alternative land use. | SLR Consulting (Africa) (Pty) Ltd |
| Groundwater | • The proposed project has the potential to minimise the extent of a contamination plume that could migrate off-site. | |
| Air | • In the absence of rehabilitation, the proposed project has the potential to generate wind-blown dust from a larger exposed area. | Airshed Planning Professionals (Pty) Ltd |
| Noise | • No noticeable noise impacts are anticipated as a result of closure but noise could be generated by future post closure land use activities. | |
| Visual | • In the absence of rehabilitation, the proposed project has the potential to general negative visual views through waste rock dumps that will remain on surface post closure. With rehabilitation visual impacts will be improved with rehabilitation. | Graham A Young |
| **Socio-economic** | | |
| Economics | • The proposed project has the potential to have a positive net economic impact on the national, local and regional economy by allowing for the efficient exploitation of future underground resources located to the north of the current open pit. | Mercury |
| Social benefits | • Alternative land use has the potential to enhance alternative employment and economic development that has the potential to improve livelihoods of individuals living in the local area. | Qualitative assessment |
| Sense of place | • By establishing an alternative land use at closure, the proposed project would change the nature of the site and could be perceived by surrounding land users as either positive or negative.<br>• An alternative closure option will allow for earlier rehabilitation of waste rock dumps which would influence the status of rehabilitation at closure thereby minimising impacts. | Qualitative assessment |
| Safety of third parties | • In the absence of rehabilitation, the proposed project would present a partially open pit that could be harmful to third parties and animals. Mitigation can make the land safe. | Qualitative assessment |
| Land use | • The establishment of a functional pit lake has the potential to enhance alternative land uses associated with access to surface water and increased biodiversity. | Qualitative assessment |

## STEPS IN THE ENVIRONMENTAL AUTHORISATION PROCESS

The environmental assessment process provides:

- Information on the project and environment in which it is being undertaken;
- Identifies, in consultation with I&APs, the potential negative as well as positive environmental and socio-economic impacts of the proposed project; and
- Reports on management measures required to mitigate impacts to an acceptable level and incorporates requirements for post closure monitoring (where required).

The likely process steps and timeframes are provided below.

**PHASE I – Pre-application (May 2019 to August 2019)**

- Pre-application meetings with the DMR;
- Identification of relevant I&APs and commenting authorities and related development of the project database;
- Notify commenting authorities and I&APs of proposed project and environmental assessment (via press advertisements, site notices and the Background Information Document);
- Hold a public and commenting authority meetings; and
- Initiate and complete specialist studies.

**PHASE II – Basic Assessment (September 2019 to January 2020)**

- Submission of the environmental authorisation (NEMA) application to the DMR;
- Compile Basic Assessment Report and summary and distribute to I&APs and commenting authorities registered on the project database for review and comment for 30 days;
- Submit the final Basic Assessment Report (inclusive of comments raised during the review period) to the DMR for decision making purposes (107 days legislated decision-making period); and
- Circulate the DMR decision to I&APs registered on the project database.

## PUBLIC PARTICIPATION PROCESS

The purpose of the public participation process is to notify I&APs and commenting authorities of the proposed project and to provide them with opportunity to raise issues or concerns regarding the proposed project. The public participation process will be undertaken in accordance with the requirements of Chapter 6 of Regulations 982 of 4 December 2014 (EIA Regulations), as amended. Parties involved in the environmental authorisation process are outlined below.

**PARTIES INVOLVED IN THE ENVIRONMENTAL AUTHORISATION PROCESSES**

**I&APs**

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

**COMPETENT AUTHORITY**

* Department of Mineral Resources and Energy

**COMMENTING AUTHORITIES**

* Northern Cape Department of Environment and Nature Conservation (DENC)
* Department of Environment, Forestry and Fisheries
* Northern Cape Department of Rural Development and Land Reform (DRDLR) – inclusive of the Land Claims Commissioner
* Department of Human Settlement, Water and Sanitation

**LOCAL AUTHORITIES**

* John Taolo Gaetsewe District Municipality
* Joe Morolong Local Municipality (including the ward councillor)

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

**TSHIPI É NTLE MANGANESE MINING (PTY) LTD**
**BACKGROUND INFORMATION DOCUMENT**
**ALTERNATIVE CLOSURE AND REHABILITATION PROJECT AT THE TSHIPI BORWA MINE**

**JUNE 2019**

**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**
**SLR Consulting (Africa) (Pty) Ltd**
Email: nsmyth@slrconsulting.com
Tel: 011 467 0945
Fax: 011 467 0978