

Scoping report for the Environmental Authorisation of Majakaneng Township development within Madibeng Local Municipality at Bojanala Platinum District Municipality, North-West Province.

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Prepared for NTG Solution CC

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Final Scoping report	Thabelo Nelwamondo	

EXECUTIVE SUMMARY

NTG Solutions on behalf of Housing Development Agency intends to develop Majakaneng Township by constructing approximately 1000 residential opportunities. Therefore, an environmental impact assessment (EIA) has commenced, assisting the developer in identifying all potential adverse environmental consequences of the project, their extent, and significance and to ensure that the environmental management requirements are adequately implemented.

The proposed project is located on the remaining extent of portion 25 of the farm Wolhuterskops 452 JQ, approximately 80km west of Pretoria in the Madibeng Local Municipality in the Bojanala Platinum District Municipality in the North West Province.

The site will be cleared and levelled for the construction of buildings and installation of infrastructure (i.e. roads, sewage, electricity and storm water) to provide basic services to the proposed development. The sewage infrastructure will be connected to an existing sewage line that disposes the sewage from the nearby Baphong Traffic Control Center Sewage works. The site will get access from the tarred road that can be accessed from the R104, please refer to the attached locality map on Appendix A.

PURPOSE OF THE SCOPING REPORT

This Scoping Report pertains to presenting the findings of the scoping phase of the EIA process being undertaken towards the application for EA for the proposed Majakaneng township development. The objectives of the scoping report are to:

- Identify the policies and legislation that are relevant to the activity;
- To motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
- To identify and confirm the preferred activity and technology alternative through an impact and risk assessment and ranking;

To provide preliminary identification and confirmation of the preferred site layout, through a detailed site layout process, which includes an impact and risk assessment process including cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic, and cultural aspects of the

environment. The site layout investigations and selection of the preferred alternative will be refined and finalized in the subsequent EIA phase;

- To identify the key issues to be addressed in the detailed assessment phase;
- To agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required, as well as the extent of further consultation to be undertaken. This will assist in determining the impacts and risks the activity will impose on the preferred site and/or layout through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development infrastructure within the preferred site layout; and
- To identify preliminary measures to avoid, manage, or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored. These mitigation measures will be further refined during the EIA phase.

PUBLIC PARTICIPATION

The Public Participation Process (PPP) for the proposed development has been undertaken in accordance with the requirements of the NEMA EIA Regulations (2014) as amended, and in line with the principles of Integrated Environmental Management (IEM). The PPP commenced on the 06th of May 2021 with an initial notification and call to register for a period of 30 days, ending on the 07th of June 2021.

This scoping report will be made available for public review and comment for a period of 30 days in line with the legislative timeframes. The comments received from I&AP's during the initial call to register to date have been captured in a public consultation summary included in this report and appended in detail in the form of a Public Participation Report which will form part of the final submission to the competent authority.

Comments received during this scoping report public review period will also be addressed and added to the public consultation summary as part of the finalised Scoping Report to be submitted to DEDECT for their review and decision-making. On acceptance of the scoping report from DEDECT, an EIA Report, including an EMPr, will also be compiled and presented for public comment as part of this EIA process during which time further stakeholder engagement will take place.

This scoping report has been made available for review and comment at the Majakaneng and Modderspruit Public Library. Please ensure all comments on the scoping report are submitted to Envirostep by 06th of June 2021. Contact details are provided below:

Envirostep Pty Ltd; Phone: 081 760 7362; Fax: 086 604 5465; Contact Person: Thabelo Nelwamondo; Email: tmatshisevhe@gmail.com

PRELIMINARY ENVIRONMENTAL IMPACT ASSESSMENT

A preliminary assessment was undertaken to identify all the potential risks and impacts associated with each phase of the proposed township development. The background information from similar EIAs and specialist studies undertaken for the site were consulted as well as a screening of all the activities planned for the development to ensure that all the potential impacts have been identified. Each of the identified risks and impacts for the project phases were assessed using the impact assessment methodology described in the body of the report. The impact assessment criteria include the nature, extent, duration, magnitude/intensity, reversibility, probability, public response, cumulative impact, and irreplaceable loss of resources.

The following impacts were determined to have a potentially medium negative final significance:

- Loss/destruction of natural habitat;
- Displacement of faunal species;
- Altered hydrological regime;
- Erosion of wetlands;
- Nutrient enrichment; and
- Increase in the spread of diseases.

In terms of positive impacts, the following key benefits have been identified:

- Employment opportunities; and

- Opportunities for local contractors and SMEs.

The positive and negative impacts will be further assessed during the EIA phase of the project. Furthermore, potential mitigation measures have been recommended and will be refined and supplemented based on input from the EAP, public consultation, and specialist assessments during the EIA phase of the project. The Environmental Management Programme (EMPr) prepared in the EIA phase will, include the identified appropriate mechanisms for avoidance and mitigation of the negative impacts and enhancing the positive.

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Acronyms

CBA	Critical Biodiversity Area
DEA	Department of Environmental Affairs
DEDECT	Department of Economic Development, Environment, Conservation and Tourism
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIAR	Environmental Impact Assessment Report
ESA	Ecological Support Area
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EXT	Extension
I&AP	Interested & affected Parties
IDP	Integrated Development Plan
NEMA	National Environmental Management Act
NEMBA	National Environmental Management Biodiversity Act
MLM	Madibeng Local Municipality
PPP	Public Participation Process
SDF	Strategic Development Framework
SAHR	South African Heritage Resources Act

Definitions

Alien vegetation: means all undesirable vegetation, defined as but not limited to, all declared category 1 and category 2 plants in terms of the Conservation of Agricultural Resources Act (43 of 1983) (CARA) amended regulations 15 and 16 as promulgated in March 2001.

Applicant: Any person who applies for and plans to undertake an activity or to cause such activity to be undertaken as contemplated in the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010.

Biodiversity: The variability among living organisms from all sources including, terrestrial, marine, and other aquatic ecosystems, and the ecological complexes of which they are part.

Construction activity refers to any action taken by the Contractor, his subcontractors, suppliers or personnel in undertaking the construction work.

Construction area(s): refers to all areas used by the Contractor in order to carry out the required construction activities. This includes, all offices, accommodation facilities, testing facilities/laboratories, batching areas, storage & stockpiling areas, workshops, spoiling areas, access roads, traffic accommodation (e.g. bypasses), etc.

Ecology: The study of the inter relationships between organisms and their environments.

Environment means the surroundings within which humans exist and that are made up of:

- land, water and atmosphere;
- micro-organisms, plant and animal life;
- any part or combination of the above and the interrelationships among and between them; the physical, chemical, aesthetic and cultural properties; and
- conditions of the foregoing that influence human health and well-being.

Environmental Impact: refers to any change to the environment, whether desirable or undesirable, that would result directly or indirectly from any construction activity.

Environmental Impact Assessment: Assessment of the effects of a development on the Environment.

Environmental Management Plan: A legally binding working document, which stipulates environmental and socio-economic mitigation measures that must be implemented by several responsible parties throughout the duration of the proposed project.

Hazardous material/substances: refer to any substance that contains an element of risk and could have a deleterious effect on the environment.

Open Space: Areas free of building that provide ecological, socio-economic and place making functions at all scales of the metropolitan area.

Road reserve: refers to the proclaimed 150m wide corridor of land within which the road is located and that will be defined by the new fence line as part of the construction contract.

Study area/Proposed development site: Refers to the entire study area encompassing the total area of the land parcels as indicated on the study area map.

Sustainable Development: Development that has integrated social, economic, and environmental factors into planning, implementation and decision making, so as to ensure that it serves present and future generations.

Vegetation rehabilitation: refers to the re-establishment of locally indigenous vegetation with a similar species composition to that which naturally occurs in the area.

1. INTRODUCTION

1.1. Project Background

To manage the Environmental Impact Assessment (EIA) application process, the applicant (NTG Solutions Pty Ltd) on behalf of Housing Development Agency appointed Envirostep Pty Ltd as an independent Environmental Assessment Practitioner as required by the EIA Regulations, 2014 to assist in preparing and submitting the Scoping and Environmental Impact Assessment (EIA) Reports as well as undertaking a Public Participation Process (PPP), to obtain an Environmental Authorisation (EA) for the proposed Majakaneng Township Development.

NTG Solutions on behalf of Housing Development Agency intends to develop Majakaneng Township by constructing approximately 1000 residential opportunities. Therefore, an environmental impact assessment (EIA) has commenced, assisting the developer in identifying all potential adverse environmental consequences of the project, their extent, and significance and to ensure that the environmental management requirements are adequately implemented.

The EIA process is prescribed by Chapter 5 of the Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the 2014 Environmental Regulations published as GN No. R. 326. A Scoping Assessment Process must be undertaken for activities as listed in Regulation No. R. 327 and 325 that may have a significant impact on the environment. A full public participation process forms part of the EIA and is discussed in further detail in the report.

1.2. Project location

The application site is vacant and is located on the remaining extent of portion 25 of the farm Wolhuterskops 452 JQ, approximately 80km west of Pretoria in the Madibeng Local Municipality in the Bojanala Platinum District Municipality in the North West Province. The proposed site is situated in Majakaneng Township, adjacent to N4 Highway. The site is vacant and current landuse s vacant/ unspecified.



Figure 1: Locality Map of the proposed site

1.3. Details of the applicant

Table 1: Details of the applicant

Aspect	Details
Company name	NTG Solution Pty Ltd
Contact person	Mohamed Shaik
Postal address	P O Box 1611, Halfway Gardens, Midrand, 1685
Contact no.	011 041 5100
Email address	mshaik@ntgsolutions.co.za

1.4. Details of EAP

To ensure compliance with the EIA Regulations (2014) promulgated under section 24 (5) of the National Environmental Management Act, 1998 NEMA (Act No. 107 of 1998) (NEMA) and environmental best practice, the applicant appointed Envirostep (Pty) Ltd to manage the Environmental Authorisation process for the proposed project.

Table 2: Details of EAP

Aspect	Details
Company name	Envirostep Pty Ltd
Representative	Thabelo Nelwamondo (Pr.Sci.Nat)
Physical address	47602 Carlswald North Estate, Tambotie Street, Midrand, 1685
Other contact details	Tel.:081 760 7362 Email: tmatshisevhe@gmail.com
Expertise/ experience	She holds an Honours degree in Environmental Management majoring in Mining Geology and Ecology and Resource Management from the University of Venda (2014). She is registered with the South African Council of Natural Scientific Professions (SACNASP) as a Candidate Natural Scientist. She has more than 6 years working experience in the field of Environmental Sciences. She has been exposed to a wide range of projects within the realm of planning

	professions. She has worked on various projects which includes; amongst others, Constructions, waste management, water monitoring, WULAs and mining.
Senior EAP	Shadi Mathobela (Pr.Sci.Nat)
Contact details	Tel.: 073 433 7453 Email: shadi@envirostep.co.za
Expertise/ experience	She has more than 12 years working experience in public sector, mines and private sectors in the field of Environmental Sciences. She is registered with SACNASP as a Professional Natural Scientist. She has been exposed to a wide range of projects within the realm of planning professions. She has worked on various projects which includes; amongst others, Constructions, waste management, water monitoring, WULAs and mining.

1.4.1. Specialist Consultants

To ensure a comprehensive assessment process and availability of requisite information for decision making, Envirostep appointed a team of experts that are well respected in their fields of expertise to assess the potential environmental impacts that the proposed development may have on the receiving environment.

Two specialist consultants will be appointed to provide discipline specific input during the EIA process as follows:

- Heritage; and
- Ecology.

The specialist studies involved the gathering of data relevant to identifying and assessing environmental impacts at scoping level that may occur as a result of the proposed project. These impacts were then assessed according to pre-defined impacts rating methodology pre- and post-mitigation (refer to Section 9 for the impact assessment methodology). Specialists recommended appropriate mitigation/management measures to minimise potential negative impacts or enhance potential benefits, respectively. The specialist declarations of independence will be included in the specialist reports.

1 PROJECT MOTIVATION

Urban expansion in terms of residential development and housing is occurring predominantly in the Western side of the site area. The constant growth in the Township's population means that housing availability must continually increase to meet demands. Therefore, the proposed residential development will make a positive contribution towards housing availability and other business opportunities in Majakaneng.

The applicant aims to make use of all available green energy initiatives at their disposal and will consider the following energy efficient initiatives. The implementation of solar geysers, solar panels and energy efficient LED lights for housing purposes which will reduce electricity consumption per house as well as the entire development. By applying these initiatives the project will have a reduced carbon footprint thereby decreasing its impact on the environment. The use of green energy products will also reduce the strain on the power grid and significantly reduce future costs.

The establishment of the new proposed residential area will benefit society, especially the local residents, in the following manner:

- The area will consist of a private open space which will stay untouched, thus the natural vegetation will be preserved;
- It will have a positive effect on the city's infrastructure, where it will contribute towards public housing as well as the road network and the connecting of larger networks in the future;
- The proposed development will be in close proximity to the farms and areas that are ideal for hiking and walking.

The following legal requirements will be followed when the process is conducted:

- National Environmental Management Act 107 of 1998 (NEMA);
- National Heritage Resources Act 25 of 1999 (NHRA);
- National Environmental Management: Biodiversity Act 10 of 2004;
- National Water Act 36 of 1998 (NWA);
- Agriculture Act

- National Building Regulations and Building Standards Act 103 of 1977;
- Occupational Health and Safety Act 181 of 1993, (OHSA)

The nature of the proposed project includes activities listed in the following Listing Notices: Listing Notice 2 (GNR 325) and Listing Notice 1 (GNR 327) of the EIA Regulations of 2017. Activities to be assessed as part of the EIA Process as stated in Listing Notice 2 of 2017 as amended from the EIA Regulations of 2014.

Activity 15: The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for

- the undertaking of a linear activity; or
- maintenance purposes undertaken in accordance with a maintenance management plan.

Activities to be assessed as part of the EIA Process as stated in Listing Notice 1 of 2017 as amended from the EIA Regulations of 2014.

Activity 28: Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for Agriculture or afforestation on or after 01 April 1998 and where such development:

- Will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or.
- Will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;

2 ALTERNATIVES

The following alternatives were considered in terms of site selection, technology and layout alternatives during the study:

3.1. Site alternatives

The proposed site is the only site where a township development can take place. Therefore, no site alternatives were considered as this is the only potential site in the vicinity where development can take place (Refer to locality maps in Appendix A). The proposed site is bordered by the N4 to the west and commercial farms on the southern side as well as residential to the west.

Positive aspects about the proposed site:

- The proposed site is currently owned by the applicant (municipality) and this will lower the cost of establishing a residential development.
- The proposed site is on land that has been designated for future residential development according to Spatial Planning and Land Use Management Act, 2013.
- The proposed site is located a relatively large distance from any streams and wetlands or dams making the environmental impact on these factors low.

Negative aspects about the proposed site:

- The proposed site is bordered by the N4 to the south which could affect the noise levels.
- Towards the East of the proposed site is Bapong Traffic Control Center that is also surrounded by farms or lands which are lands are privately owned.

3.2. Technological alternatives

3.2.1. Sewage facilities & services

During the construction of the residential area, a possible option can be made between the construction of a full sewage system and the use of a conventional septic tank.

Alternative 1: Full Sewage System (Preferred Alternative)

The installation of a full sewage system will consist of the constructing of a below ground sewage pipeline network which connects each building to the main sewage line of the residential development. The main sewage line is connected to the municipal sewage pipes

which lead to the nearest sewage plant. The entire infrastructure of such a system remains below ground.

Positive attributes of the alternative for the residential development:

- The system will be more efficient as all of the infrastructure is below ground and out of sight;
- The below ground will lower the risk of surface water contamination as all pipes are buried and sealed;
- The sewage system will have a smaller aesthetic impact on the surrounding environment with only manholes being above ground and visible.

Negative attributes of the alternative for the residential development:

- The full sewage system will have a higher construction cost to implement and connect if the site is located far from the existing municipal sewage lines;
- In the event of a below ground leakage, the sewage system can cause groundwater pollution if the source is not identified and fixed;
- Future maintenance can become expensive. To maintain the sewage system will mean that a competent party will have to be contracted to maintain and service the sewage system.

Alternative 2: Conventional Septic Tanks:

The septic tank system consists of a large impermeable tank which is connected to the below ground sewage network. The tank holds all the sewage. The system is implemented through the tank being emptied daily.

Positive attributes of the alternative for the residential development:

- A septic tank will reduce the construction costs of the project as there will not any additional costs to connect the system to an existing off-site sewage system.

Negative attributes of the alternative for the residential development:

- A septic tank holds a bigger risk of pollution of groundwater in the case that it starts to leak or overflows. The large quantity of sewage stored in the septic tank can become an environmental hazard if the tank breaks or starts to leak;
- The septic tank on its own can give off an unpleasant smell to the surrounding environment. The tank will have to be emptied daily and chemically treated to ensure that no bad odours occur;
- Downslope streams run a higher risk of becoming contaminated in the event of an overflow or fault. The large amount of sewage in the septic tank as above mentioned, can become a possible environmental hazard in the case a fault;
- The large amount of residences, means that a very large septic tank will have to be installed which will take up a lot of space and add to the above mentioned negative aspects;
- The septic tank will have to be emptied daily. In the case of municipal strike or problem with the equipment, the tank will overflow thus causing an environmental issue;
- Maintenance of the septic tanks could get expensive.

3.2.2. Electrical facilities and services

Alternative 1: Municipal Electricity (Preferred Alternative)

The proposed development will make use of conventional electricity where it will link-up to the Madibeng local municipality power grid. The system will make use of ESKOM electricity.

Positive attributes of the alternative for the residential development:

- Smaller aesthetic impact to the surrounding as only electricity pylons will need to be constructed. The site will be connected by only the necessary electrical facilities and pylons;
- The conventional electricity grid system will have a lower initial cost to construct as only electricity pylons need to be constructed to connect the site with the existing power grid.

Negative attributes of the alternative for the residential development:

- The residential development can be left without electricity as they will be dependent on the Madibeng Local municipality who is subjective to load shedding if necessary;
- The use of conventional electricity will contribute to environmental degradation. The generation of electricity is dependent on the burning of fossil fuels which will contribute to environmental issues;
- Future electricity cost will be high as inflation, living costs and electricity rates rise.

Alternative 2: Solar Power

The alternative system will make use of large scale solar panels to generate electricity for the site. The system consists of solar panels being placed in and around the site on the best locations for all-day sunlight. The solar panels are all connected to a cell room located on site where solar power is stored and distributed as electricity to the residential site.

Positive attributes of the alternative for the residential development:

- The system will be more energy efficient as a green electricity will be used which is more environmentally friendly;
- It will lower the total carbon footprint of the project lifetime. By using solar power, the environmental impact of the project will become smaller once the construction phase is complete;
- It will increase environmental awareness and accountability as the solar system will be visible to all residents;
- The development will not be subject to power outages as the site will not be dependent on ESKOM electricity.
- Solar power will also result in lowering the strain on the power grid.

Negative attributes of the alternative for the residential development:

- The initial cost of the solar power system will be more expensive to construct as solar panels and the battery system that will be used are expensive to buy;

- The maintenance will be higher than a conventional electricity system as the equipment are of a higher quality material;
- A solar system will have a higher aesthetic impact on the surrounding environment as the clearing of open areas for the construction of solar panels will be needed.

3.3. Layout alternatives: Alternative 1 (Preferred Alternative)

In terms of roads that are currently connected to the proposed development site there is a provincial road (R104) which connects from the R556. Alternative layout connections were not considered as the proposed site is bordered by the N4 to the north and Echo berry farm to the south which is privately owned.

There are no current alternative sites or access routes than can be considered as layout alternatives; however, it is possible to add additional community facilities to the proposed township development.

3.4. No-go alternative

If the no-go alternative is decided on, the project will not commence on the proposed site. However, this will have a negative impact on the public and the infrastructure of the Madibeng local municipality area as the proposed residential development will have a positive contribution on the housing and infrastructure status of the Madibeng local municipality.

3 DESCRIPTION OF THE RECEIVING ENVIRONMENT THAT MIGHT BE AFFECTED AND A DESCRIPTION OF ENVIRONMENTAL ISSUES, POTENTIAL IMPACTS AND CUMULATIVE EFFECTS.

4.1. Geology and Topography

Norite and Gabbro are minerals quarried from the Bushveld Igneous Complex (BIC). These minerals are contained within the Merensky reef which stretches parallel to the N4 in the northern direction of the Magaliesberg range. The Bushveld Igneous Complex generally contains the bulk of Platinum reserves. The mining potential of associated with these minerals will be deliberated later in the report.

The northern area of Madibeng Local Municipal is generally mountainous with higher level terrain types along the Magaliesberg and the Witwatersberg Mountain ranges. The area has a total of four mountain ranges, which are:

- The Magaliesberg Mountain range;
- The Witwatersberg Mountain range;
- The Langberg Mountain Range; and
- The Elandsberg Mountain range.

Surface relief ranging from 300 metres to 450 metres along the Magaliesberg Mountain range. The Magaliesberg range together with the Hartbeespoort dam equate to a majestic natural landscape. This causes increased development initiatives along the northern boundary of the dam. This terrain poses environmental concerns with regards to slope restrictions on development initiatives at macro level, as there is an important need to retain the natural landscape.

The Elandsberg Mountain range is located in the north western area of the municipality. It falls within the 130 to 300 metres surface relief. Similarly to the Landberg mountain range, this mountain range has tourism potential. However the game farming activity occurs at a lower scale.

4.2. Groundwater and surface water

Madibeng Local Municipality hydrological system is composed of three dams and three main rivers. All of these water sources serve as irrigation sources for the agricultural activity in the Municipality. The rivers are the Crocodile River, Moretele River and Tolwane River, while the dams are Hartbeespoort Dam, Klipvoor Dam and Rooikoppies Dam.

The Hartbeespoort Dam is located on the Southern area of the municipality. It is found between the Magaliesberg and the Witwatersberg Mountain Range. This dam has a national footprint. The dam wall which connects Damdoryn and Schoemanville is a national landmark known for its historical significance. The Magaliesberg River and the Crocodile River feed into this dam, with the latter River as the bigger tributary.

From a tourism point of view, Hartbeespoort Dam is considered a water based leisure and entertainment zone. The scenic beauty of the dam and its surrounding ranges has resulted

in increased residential development and tourist attraction into the local municipality. This ironically exerts pressure on the ecological conditions of the dam.

In an attempt to reserve this area, some of the dam banks are declared protected as small nature reserves. Kommandonek and Oberon are the most noticeable of the nature reserves. However, water pollution is a major concern with the regards to the dam's ecology. This is not attributed to the residential and tourism pressures experienced at the dam but rather by pollution coming

4.3. Vegetation

Madibeng Local municipality area is dominated by the Bushveld vegetation type. The Clay thorn vegetation belt stretches across the N4 route covering Brits and other settlements such as Marikana and Ga-Rankuwa. This area is populated by the Marikana Thornveld. South of the Marikana Thornveld lies a variety of vegetation names ranging from different types of Bushvelds to the Carletonville grasslands towards the Gauteng province. The Northern side of the Marikana Thornveld is dominated by sandy types of Bushvelds.

The Southern region located south of Brits in the Municipal area contains the bulk of heritage and conservation sites. Magaliesberg and the Witwatersberg Mountain Ranges

4.4. Landuse and capability

With regard to land capacity, the two important aspects to be considered are the grazing capacity and soil potential within Madibeng Local Municipality.

The Local Municipality of Madibeng is characterized by a variety of fertile soil types, pleasant climate and numerous water sources. As a result of these favourable conditions, the area is suitable for producing a variety of agricultural products. Another great advantage for agricultural activities is that the area is part of one of the largest irrigation schemes in the country. According to agriculture sources in the area, approximately 20 % of agricultural land with access to canalized water is not utilized for agricultural purposes at this moment. Irrigated vegetable farmlands cover about 130 km² around Brits, with canalized water from Hartbeespoort Dam. Approximately 18 000 ha of land is under irrigation with about 16 000 ha from the Hartbeespoort Dam irrigation Scheme and 4 000 ha from the Crocodile River. (Beestekraal).

The Agriculture and Nature Conservation Unit started the financial year of 2007/08 with a general survey of all agricultural activities in Madibeng. The Madibeng farming community

was then seen as having three categories with different development needs. These were classified as the commercial sector farmers, the emerging farmers and those that belong to house-hold food security producers.

Most of the land in Madibeng comprises of turf, a highly agricultural potential soil. It is a challenge within the Local Municipality as to how best to prioritise. Demographic trends of the communities escalate tremendously, in such a manner that it is difficult to provide houses without backlogs, using agricultural lands.

On the western part of Brits town there is mining activity which lies on the Merensky Reef. Mining in Merensky is a resource detailed industry and therefore specific provision has been made in MLM SDF to accommodate this type of development. The location of Merensky Reef next to Bakwena Platinum High way offers opportunities for the integration of mining activities with other economic sectors. There are also small scales mining activities scattered throughout the Madibeng Local Municipality. Within the past few years the area witnessed new open-cast mines. The mining sector in MLM mainly comprises of Platinum Group Metals, Chromium and intensive granite and sand mining.

4 DEMOGRAPHICS AND REGIONAL SOCIO-ECONOMIC STRUCTURE

Madibeng Local Municipality, in particular Brits Town is a more formal urban area which has vibrant economic nodes. The Municipality area of Madibeng is characterized by a various economy, including vibrant agriculture, mining, and manufacturing as well as tourism sectors. Nonetheless, these sectors at present contribute a huge percentage to the total Gross Geographic Product (GDP), they are capable and have potential to encourage and accommodate economic growth and development. Madibeng is the world's third largest chrome producer and includes the richest Platinum Group Metals Reserve (situated on the Merensky Reef). Manufacturing is the dominant sector, with motor industry related activities predominant.

According to Stats SA 2011 Madibeng Local Municipality has population of 477 381 people growth rate of 3, 2% from 2001 to 2011. Therefore, it is tabulated that the Municipality has a population density of 124 persons/km².

Municipality	Total Area of Municipality	Total Area of Settlements	Area of Settlements as % of Municipal Area
Madibeng Local Municipality	3,839km ²	63 639 ha	5%

The map below illustrates population concentrations per place name. It can be deduced that there are more people in Lethlabile, Brits, Bapong, Majakeng, Kgabalatsana, Elandsrand areas. Fewer concentrations are seen in the Hartbeespoort, Mmakau, Mothutlung, Klipgat and Madidi areas. A lesser concentration is visible in the rural northern areas.

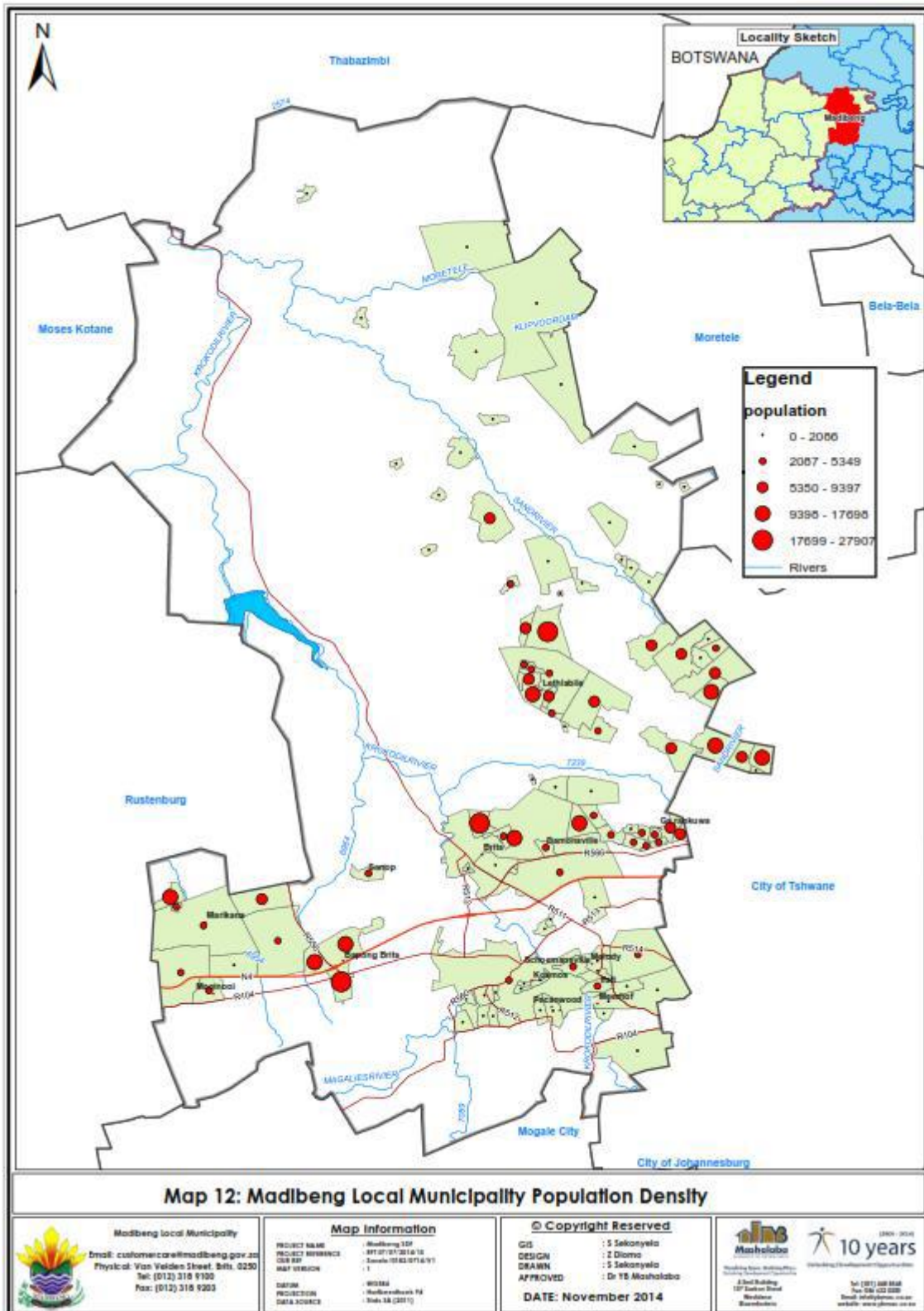


Figure 2: Population Density

The figure below concentrates only on the 2011 statistics. Similar resemblance can be seen from the previous table. In addition, this figure shows that the most population within the municipality is infants younger than four years of age as well as youth and adults ranging between 20 and 34 years of age. This shows that there are a large number of individuals of working age.

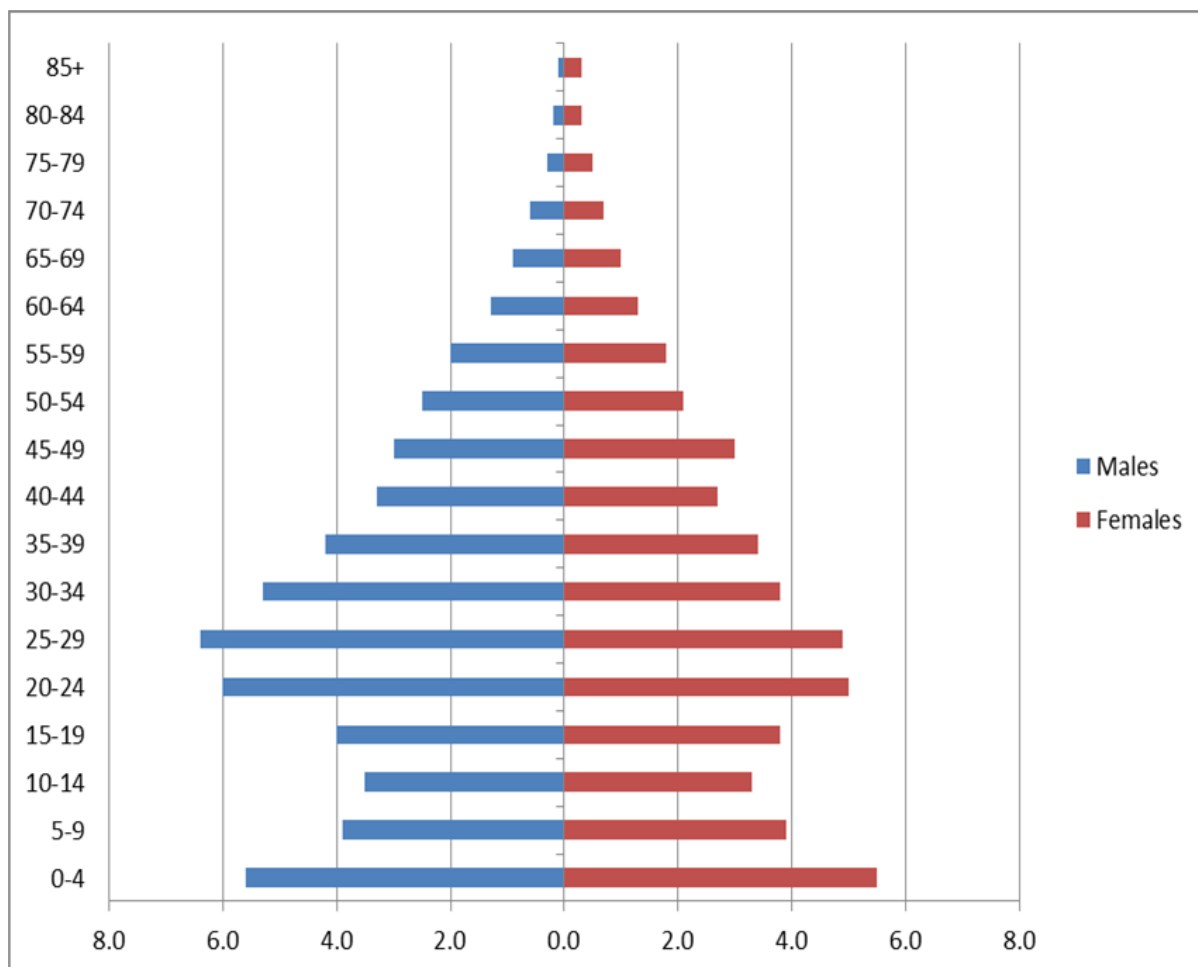


Figure 3: Population Gender and Age (Stats SA, 2011)

The chart below illustrates average household income brackets per annum for the population of Madibeng Local Municipality. The R 19, 601 –R38, 200, R38, 201 –R76, 400, and the R9, 601-R19, 600 income brackets are respectively the most contributing income levels. However there is approximately 16% of the population that has no form of income.

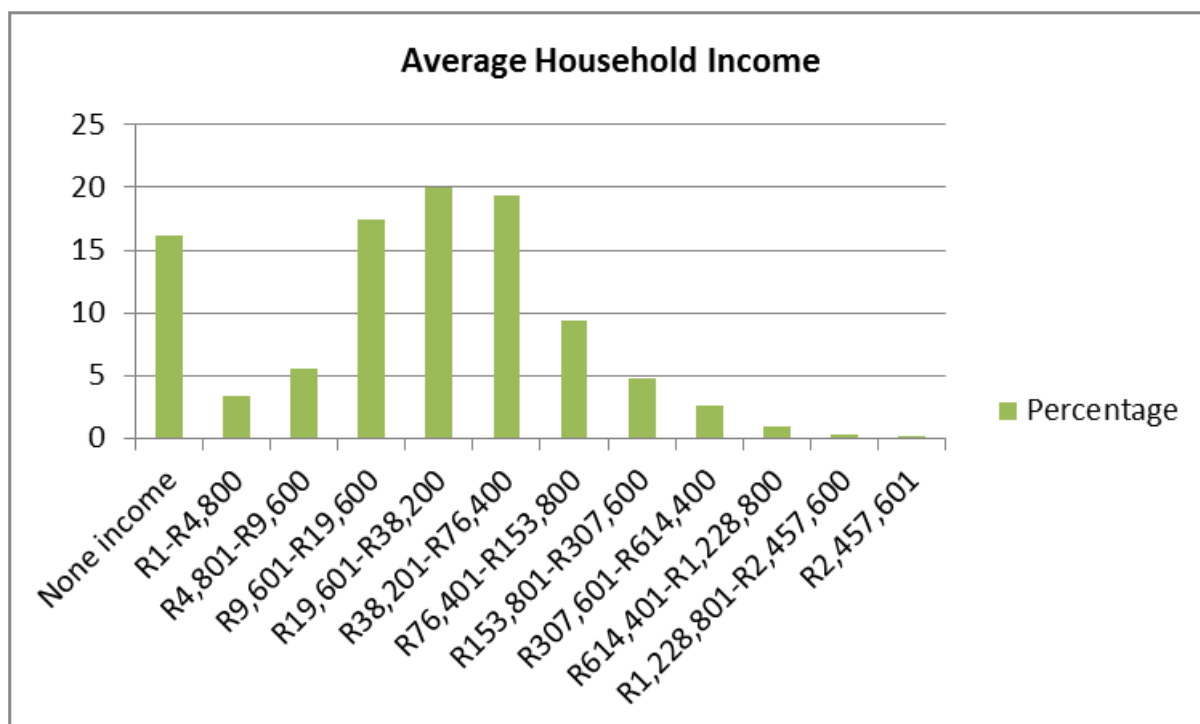


Figure 4: Average Household income (Stats SA, 2011)

The structure of Local Economy

There are local economic objectives identified within Madibeng Local Municipality and are as follows:

- Reinforcing the current Brits economic cluster for maximizing the existing competitive advantages;
- Defining the economic development role of MLM;
- Investigating and implementing incentives for the retention and support businesses currently existing in MLM;
- Identification and creation of investment opportunities; Ensuring that resources in mining, tourism, agro-industries and manufacturing are utilized economically as well as in an environmental sustainable manner;
- Establishment of politically and technocratic leadership that will connect the potential of the region’s main economic sectors and natural resource base;
- Determining economic priorities and establish simplified, user-friendly processes to encourage economic development;
- Creation, promotion and sustaining a single economic forum which is all-inclusive;
- Marketing MLM as an attractive investment destination;

- Reforming bureaucracy and reducing regulations that affect businesses;
- Finding ways and means to invest in rural economic infrastructure and to redress development imbalances;
- Improving physical access to Madibeng by road and rail; and
- Development of various fast track programmes that stimulate short-term economic opportunities.

In order to attain this MLM SDF's objective is to identify and demarcate areas that have high potential level for economic development as well as ensuring that the required movement networks are proposed to support these Economic Activity Areas. Economic Activity Areas in MLM are divided into three categories:

- Mining;
- Economic Corridors; and
- Tourism Areas.

The Madibeng economic activity is dependent on industrial, farming, tourism and little bit on mining activities. The two key economic activities in Madibeng Local Municipality are agriculture (17.7%) and manufacturing (13.3%).

5 PUBLIC PARTICIPATION DURING THE SCOPING PHASE

6.1. Consultation process

Project initiation

A PPP under Regulation 41 published in Government Notice R.594 of 4 December 2014 in terms of NEMA, is undertaken as part of the Scoping Phase that included the following:

- Placement of site notices on various locations around the site as well as the entrance to the proposed site.
- Placement of an advertisement in the local newspapers (i.e. Platinum Weekly),
- A notification and Background Information Document (BID) was sent to all potential Interested and Affected Parties (I&AP) in May 2021. This includes the adjacent landowners and relevant authorities. Refer to Annexure 3 for PPP (A time period of

30 days was given to the public to register and / or send their issues and concerns regarding the proposed project to Envirostep).

- The Draft Scoping Report was sent to all registered I&AP's for their review and comments were logged and addressed from the I&AP's regarding the reports.

I&AP

Adjacent landowners and relevant stakeholders were notified of the proposed project via written notifications and a BID. The main purpose of this was to inform the identified I&AP's of the project and obtain any issues related to the proposed project. A BID was sent to all adjacent landowners and relevant stakeholders. The draft scoping report was sent to all potential I&AP's for their review.

Authorities

The following departments and / or organs of state were consulted during the Public Participation process:

- Department of Environmental Affairs
- Department of Agriculture, Forestry and Fisheries;
- South African Heritage Resource Agency; Department of Water Affairs;
- Department of Economic Development, Environment, Conservation and Tourism (also competent authority);
- Madibeng Local Municipality Planning & Environmental Departments.

6.2. Register of I&APs / Stakeholders / Authorities contacted during the consultation process

Please note that the table below contains comments received during previous writings and correspondence from I&AP's regarding the project. These comments have already been incorporated in the reports.

Identified I&AP contacted during the PPP – Majakaneng and the surrounding areas

Table 3: I&AP contacted during the PPP

Full names	Organization	Contact details	Manner I which you were contacted	Comments/ concerns
This section will be completed once the public consultation is complete				

6 PLAN OF STUDY FOR THE ENVIRONMENTAL IMPACT ASSESSMENT

7.1. Assessment Methodology

The main objective of the EIA process will be to assess and quantify the potential impacts that were identified by the project team, specialists and I&AP during the Scoping Phase.

The concept of significance is at the core of impact identification, evaluation and decision-making during the EIA process and can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. intensity, duration and likelihood), while impact significance is the value placed on the change by different affected parties (i.e. level of acceptability) (DEAT, 2002).

The significance is rated from Low to High as indicated in the table below with an explanation of the impact magnitude and a guide that reflects the extent of the proposed mitigatory measures deemed necessary.

7.1.1. Determination of Consequence

Consequence analysis is a mixture of quantitative and qualitative information and the outcome can be positive or negative. Several factors can be used to determine consequence. For the purpose of determining the environmental significance in terms of consequence, the following factors were chosen: *Severity/Intensity, Duration and Extent/Spatial Scale*. Each factor is assigned a rating of 1 to 5, as described below.

Determination of Severity

Severity relates to the nature of the event, aspect or impact to the environment and describes how severe the aspects impact on the biophysical and socio-economic environment.

Table 4: Rating of severity

Type of criteria	Rating				
	1	2	3	4	5
Quantitative	0-20%	21-40%	41-60%	61-80%	80-100%
Qualitative	Insignifiant / Non-harmful	Small / Potentially harmful	Significant / Harmful	Great / Very harmful	Disastrous Extremely harmful

Type of criteria	Rating				
	1	2	3	4	5
Social/ Community response	Acceptable / I&AP satisfied	Slightly tolerable / Possible objections	Intolerable/ Sporadic complaints	Unacceptable / Widespread complaints	Totally unacceptable / Possible legal action
Irreversibility	Very low cost to mitigate/ High potential to mitigate impacts to level of insignificance / Easily reversible	Low cost to mitigate	Substantial cost to mitigate / Potential to mitigate impacts / Potential to reverse impact	High cost to mitigate	Prohibitive cost to mitigate / Little or no mechanism to mitigate impact Irreversible
Biophysical (Air quality, water quantity and quality, waste production, fauna and flora)	Insignificant change / deterioration or disturbance	Moderate change / deterioration or disturbance	Significant change / deterioration or disturbance	Very significant change / deterioration or disturbance	Disastrous change / deterioration or disturbance

Determination of Duration

Duration refers to the amount of time that the environment will be affected by the event, risk or impact, if no intervention e.g. remedial action takes place.

Table 5: Rating of Duration

Rating	Description
1: Low	One month
2: Low-Medium	Between 1 and 3 months (Quarter)
3: Medium	3 months to 1 year

Rating	Description
4: Medium-High	1 to 10 years
5: High	More than 10 years

Determination of Extent/Spatial Scale

Extent refer to the spatial influence of an impact be local (extending only as far as the activity, or will be limited to the site and its immediate surroundings), regional (will have an impact on the region), national (will have an impact on a national scale) or international (impact across international borders).

Table 6: Example of calculating overall consequence

Rating	Description
1: Low	Immediate, fully contained area
2: Low-Medium	Surrounding area
3: Medium	Within Business Unit area of responsibility
4: Medium-High	Within Development Boundary area
5: High	Regional, National, International

Determination of Overall Consequence

Overall consequence is determined by adding the factors determined above and summarised below, and then dividing the sum by 4.

Table 7: Example of calculating overall consequence

Consequence	Rating
Severity	Example 4
Duration	Example 2
Extent	Example 4
SUBTOTAL	10

Consequence	Rating
TOTAL CONSEQUENCE:(Subtotal divided by 3)	3.3

7.1.2. Likelihood

The determination of likelihood is a combination of Frequency and Probability. Each factor is assigned a rating of 1 to 5, as described below and in Table 6 and Table 7

Determination of Frequency

Frequency refers to how often the specific activity, related to the event, aspect or impact, is undertaken.

Table 8: Rating of frequency

Rating	Description
1: Low	Once a year or once/more during operation/
2: Low-Medium	Once/more in 6 Months
3: Medium	Once/more a Month
4: Medium-High	Once/more a Week
5: High	Daily

Determination of Probability

Probability refers to how often the activity/event or aspect has an impact on the environment.

Rating	Description
1: Low	Almost never / almost impossible
2: Low-Medium	Very seldom / highly unlikely
3: Medium	Infrequent / unlikely / seldom
4: Medium-High	Often / regularly / likely / possible
5: High	Daily / highly likely / definitely

Overall Likelihood

Overall likelihood is calculated by adding the factors determined above and summarised below, and then dividing the sum by 2.

Table 9: Example of calculating the overall likelihood

Likelihood	Rating
Severity	Example 4
Duration	Example 2
SUBTOTAL	6
TOTAL LIKELIHOOD:(Subtotal divided by 2)	3

Determination of Overall Environmental Significance

The multiplication of overall consequence with overall likelihood will provide the environmental significance, which is a number that will then fall into a range of LOW, LOW-MEDIUM, MEDIUM, MEDIUM, MEDIUM, MEDIUM-HIGH or HIGH, as shown in the table below.

Table 10: Determination of overall environmental significance

Significance or Risk	Low	Low-Medium	Medium	Medium-High	High
Overall Consequence					
X	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25
Overall Likelihood					

Qualitative description or magnitude of Environmental Significance

This description is qualitative and is an indication of the nature or magnitude of the Environmental Significance. It also guides the prioritisations and decision-making process associated with this event, aspect or impact.

Table 11: Description of the environmental significance and the related action required.

Significance	Low	Low-Medium	Medium	Medium-High	High
Impact Magnitude	Impact is of very low order and therefore likely to have very little real effect.	Impact is of low order and therefore likely to have little real effect. Acceptable.	Impact is real, and potentially substantial in relation to other impacts. Can pose a risk to company	Impact is real and substantial in relation to other impacts. Pose a risk to the company. Unacceptable	Impact is of the highest order possible. Unacceptable. Fatal flaw.
Action Required	Maintain current management measures. Where possible improve.	Maintain current management measures. Implement monitoring and evaluate to determine potential increase in risk. Where possible improve	Implement monitoring. Investigate mitigation measures and improve management measures to reduce risk, where possible.	Improve management measures to reduce risk.	Implement significant mitigation measures or implement alternatives.

Should any fatal flaws be identified during the EIA process which will be indicated by a “high” significance rating, the activity related with the potential impact will undergo the “no-go” alternative (i.e. be excluded from the proposed project) if the impact cannot not be managed and/ or mitigated to acceptable levels.

7 EIA PROCESS

8.1. Tasks anticipated for the EIA process

The tasks that will be undertaken as part of the EIA process together with the manner in which it will be undertaken is summarised in the table below.

- Conduct baseline assessment at all the sites to determine the potential impact on the various spheres of the receiving environment.
- Consult with the SAHRA on the protection of cultural and heritage resources by a suitably qualified professional in terms of the National Heritage Resources Act.
- Conduct a Biodiversity Study to assess any such impacts.
- Conduct an Ecological Study to assess the impact on the ecosystem if any.
- Conduct an Archaeological Study to determine if the area holds any archaeological or historical value.
- Complete a concept design of the site.

8.1.1. Consultation and public participation process

The public participation process to be followed during the EIA process will include the following:

- Continued consultation with registered I&APs and the relevant Authorities;
- It is proposed to have one public meeting during the EIA phase for all registered I&AP.
- Updating of the I&AP database throughout the consultation process in order to keep record of all I&AP contacted during the process;
- A copy of the Draft Environmental Impact Assessment Report (EIAR), Environmental Management Programme report (EMPr) together with any specialist reports (if any) will be made available at a public space in Majakaneng and areas close by for public comment. All registered I&APs will be notified of the availability of the report and provided with a time period of 30 days to comment;

- A copy of these reports will also be made available to the authorities for a period of 30 days for comment;
- Compilation of a Comments & Response Report that will include all comments received during the process (including comments received on any draft reports) as well as the response taken by the EAP to address these comments where possible;
- Internal consultation with the Free State Department of Small Business Development, Tourism and Environmental Affairs in terms of the final design / layout of the development.

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APPENDIX A: LOCALITY MAP

APPENIDX B: DETAILS OF EAP

APPENDIX C: PUBLIC PARTICIPATION PROCESS