DRAFT BASIC ASSESSMENT REPORT

ENVIRONMENTAL AUTHORISATION PROCESS FOR THE PROPOSED MIXED RESIDENTIAL DEVELOPMENT ON PORTION 149 OF THE FARM ROOIKOPPIES 297 JQ IN MARIKANA, NORTH-WEST PROVINCE

DEDECT Ref No.:

Green Gold Group Ref No.: GGG22/11

Report date: 2022 09 22

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APPLICANT:

THARISA MINERALS (PTY) LTD

327 MAIN ROAD

2ND FLOOR, THE CROSSING

BRYANSTON

Table 1 Project Details

PROJECT DETAILS	
PROJECT TITLE	The Proposed Mixed Residential Development on Part of Portion 149 on the Farm Rooikoppies 297 JQ in Marikana, North-West Province
APPLICANT	Tharisa Minerals (Pty) Ltd
LOCATION	Rooikoppies 297 JQ in Marikana, North-West Province Centre Coordinates: 25° 42' 35.17"S, 27° 29 33.05"E
ENVIRONMENTAL ASSESSMENT PRACTITIONER	Green Gold Group (PTY) Ltd
REPORT STATUS	Draft Basic Assessment Report
DATE	2022/09/22

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DEFINITIONS

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TERMS	DEFINITIONS
Environment	Our surroundings, including living and non-living elements, e.g., land, soil, plants, animals, air, water and humans. The environment also refers to our built, social and economic surroundings, and our effect on our surroundings.
Environmental Authorisation	The authorisation by a competent authority of a listed activity. or specified activity in terms of this Act, and includes a similar authorisation contemplated in a Specific Environmental Management Act.
Environmental Impact	A description of the potential effect or consequence of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space
Environmental Impact Assessment	Environmental Impact Assessment (EIA), as defined in the NEMA EIA Regulations and in relation to an application to which a basic assessment must be applied, means the process of collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of that application.
Environmental Management	Ensuring that environmental concerns are included in all stages of development, so that development is sustainable and does not exceed the carrying capacity of the environment.
General Waste	Defined in the NEM: Waste Amendment Act, 2014 (Act No. 26 of 2014) Waste that does not pose an immediate hazard or threat to health or to the environment, and includes: a) Domestic waste; b) Building and demolition waste; c) Business waste; d) Inert waste; or

TERMS	DEFINITIONS
	e) Any waste classified as non-hazardous waste in terms of the regulations made under section 69, and includes non-hazardous substances, materials or objects within the business, domestic, inert or building and demolition wastes.
Groundwater	Water found underground, typically supplying wells, boreholes and springs
Hazardous waste	Defined in the NEM: Waste Amendment Act, 2014 (Act No. 26 of 2014) Any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment and includes hazardous substances, materials or objects within the business waste, residue deposits and residue stockpiles.
Interested and Affected Party	Individuals or groups concerned with or affected by an activity and its consequences. These include the authorities, local communities, investors, work force, consumers, environmental interest groups and the general public.
Mitigation measures	Measures designed to avoid, reduce or remedy adverse impacts.
Red Data Listed species	Organisms that fall into the Extinct in the Wild (EW), critically endangered (CR), Endangered (EN), Vulnerable (VU) categories of ecological status
Topsoil	Top layer of soil, a depth of between 50mm to 200mm
Waste management	A control system to limit, collect and dispose of waste in an efficient and environmentally friendly way through clear policies and environmental standards, e.g., reducing plastic packets
Waste water	Any water that has been affected by human use from domestic, industrial, commercial or agricultural activities and any sewer inflow or sewer infiltration

ABBREVIATIONS AND ACRONYMS

Table 3 Abbreviations and Acronyms

Term	Definition
BAR	Basic Assessment Report
CA	Competent Authority
CEO	Contractor's Environmental Officer
CLO	Community Liaison Officer
DEDECT	Department of Economic Development, Environment, Conservation and Tourism
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
EMS	Environmental Management System
IDP	Integrated Development Plan
MAP	Mean Annual Precipitation
MSDS	Material Safety Data Sheet
NEMA	National Environmental Management Act
NEM: WA	National Environmental Management Waste Act
NEMBA	National Environmental Management: Biodiversity Act
NFEPA	National Freshwater Ecosystem Priority Areas
PGM	Platinum Group Metals
PM	Particulate Matter
PPE	Personal Protective Equipment
RDL	Red Data Listed.
RLM	Rustenburg Local Municipality
SCC	Species of Conservation Concern

1 INTRODUCTION

Green Gold Group (Pty) Ltd was appointed by Tharisa Mine, owned by Tharisa Minerals (Pty) Ltd, to undertake an Environmental Authorisation (EA) application process for the development of a proposed mixed residential development on part of Portion 149 of the Farm Rooikoppies 297 JQ in Marikana, North-West Province. The proposed development requires an EA as it entails listed activities according to the National Environmental Management Act 1998 (Act No.107 of 1998) (NEMA) and Environmental Impact Assessment (EIA) Regulations of 2014, as amended.

Tharisa Mine is an opencast mine that was established in 2008. The mine operations produce chrome and platinum group metals (PGM) concentrate. Tharisa holds several EAs, water-use licences, waste management licences and mining right which was granted in September 2008, in terms of Section 23 of the Mineral and Petroleum Development Act 2002 (Act No. 28 of 2002).

One of the challenges Tharisa faces is the encroachment of informal settlements on the land on which Tharisa holds a mining right. The two informal settlements are Lapologang and Mmaditlhokwa communities. These communities are characterised by a high proportion of informal housing and unemployment. The need for formal housing, health and safety of the community, alongside Tharisa's desire to serve their employees and members of the community, are the driving force behind the need for this mixed residential development project.

Two site were identified and assed for the proposed development as listed in Table 5. Potential environmental impacts for each of the two sites were assessed and ranked according to their potential impact. Option 1 has the least and Option 2 the most potential negative impacts.

2 DETAILS OF EAP

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Professional Affiliations	1. Professional Natural Scientist (Pr.Sci.Nat). Reg. No. 400146/08 2. International Association for Impact Assessment (IAIAsa). Reg. No. 1624 3. EAPASA Registration application under review
Experience	21 years

Supporting EAP

Name	**Ms Thato Motlatla**
Qualifications	1) BSc Hons: Geography 2) BSc Environmental Science (Zoology and Geography)

Professional Affiliations	1) International Association for Impact Assessment (IAIAsa) Reg. No. 7021
Experience	Experience in the field of environmental management covering the following: • Environmental Compliance Monitoring • Water Use Licensing Industries: • Construction • Mining • Bulk Water Supply Industry

The Curricula Vitae (CVs) of the Environmental Team are attached in Appendix I.

3 LOCALITY OF THE PROPOSED PROJECT

3.1 REGIONAL SETTING OF THE PROPOSED ACTIVITY

Table 4 Regional setting of the proposed activity

ASPECT	DETAILS
Province	North-West Province
Regional Authority	Department of Economic Development, Environment Conservation and Tourism (DEDECT)
Magisterial District	Bojanala Platinum District Municipality
Local Authority	Rustenburg Local Municipality
Local Municipality Ward Number	Ward 32
Farm Name	Rooikoppies 297 JQ
Farms on which the activities take place	Option 1: Part of Portion 149 (the right side of Marikana Road) Option 2: Portions 16, 57, 58, 194, 195, 196, 198, 199, 200, 201, 202, 203, 204, 205, 209, 207
Nearest Towns	Rustenburg
Surrounding communities	Marikana, Wonderkop, Mooinooi, Buffelspoort, Lapologang and Mmaditlhokwa
Use of land immediately adjacent to mine	Residential, businesses, mining and agricultural
Water catchment and management	Crocodile River Basin – Quaternary Catchment A21K
Topographic Landmarks	Magaliesburg Mountain Range

The locality map is attached in Appendix A.

3.1.1 Locality of the Proposed Development

The proposed development will be located on the Farm Rooikoppies 297 JQ in Marikana in the Rustenburg Local Municipality and it is under the jurisdiction of Bojanala District Municipality, North-West Province. Access to the site is via Marikana Road which intersects

N4 to the south of Tharisa Mine. Two site options were assessed during the EIA process as illustrated in Table 5, and Appendix A.

Table 5 Site options of proposed development

	Farm name	Portions	Centre coordinates
Option 1	Rooikoppies 297 JQ	149 (Right side of Marikana Road)	25º 42' 32.56" S 27º 29' 22.81" E
Option 2	Rooikoppies 297 JQ	16, 57, 58, 194, 195, 196, 198, 199, 200, 201, 202, 203, 204, 205, 209, 207 only	25º42'40.55"S 27º29'52.82"E

Table 6 Option One SG Codes

Farm Name	SG Code	Portion number
Farm Rooikoppies 292 JQ	T0JQ00000000029700149	149

Table 7 Option Two SG Codes

Farm Name	SG Code	Portion number
Farm Rooikoppies 292 JQ	T0JQ00000000029700016	16
Farm Rooikoppies 292 JQ	T0JQ00000000029700057	57
Farm Rooikoppies 292 JQ	T0JQ00000000029700058	58
Farm Rooikoppies 292 JQ	T0JQ00000000029700194	194
Farm Rooikoppies 292 JQ	T0JQ00000000029700195	195
Farm Rooikoppies 292 JQ	T0JQ00000000029700196	196

Farm Name	SG Code	Portion number
Farm Rooikoppies 292 JQ	T0JQ00000000029700198	198
Farm Rooikoppies 292 JQ	T0JQ00000000029700199	199
Farm Rooikoppies 292 JQ	T0JQ00000000029700200	200
Farm Rooikoppies 292 JQ	T0JQ00000000029700201	201
Farm Rooikoppies 292 JQ	T0JQ00000000029700202	202
Farm Rooikoppies 292 JQ	T0JQ00000000029700203	203
Farm Rooikoppies 292 JQ	T0JQ00000000029700204	204
Farm Rooikoppies 292 JQ	T0JQ00000000029700205	205
Farm Rooikoppies 292 JQ	T0JQ00000000029700207	207
Farm Rooikoppies 292 JQ	T0JQ00000000029700209	209

3.1.2 Current land use consideration

There are two options considered for the proposed development. The land in the option one is characterised by a combination cropland and undeveloped thornveld. There is an artificial pond within this proposed option.

Option two consists of the entire portions 16, 57, 58, 194, 195, 196, 198, 199, 200, 201, 202, 203, 204, 205, 209, 207 of Rooikoppies 297 JQ. The current land use on these portions is mainly commercial farming, with two homesteads.

4 DESCRIPTION OF THE PROJECT

4.1 OPTION 1

The proposed mixed-use development will be located on the Farm Rooikoppies 297 JQ and will comprise ± 1,700 social houses as well as social services. The house stands will be approximately 300m^2 and the houses will have floor area of 40m^2 each. The proposed development will also consist of a pre-school, primary school, a sports fields and other amenities. Please see the attached facility illustrations (Appendix C) as well as Townplanning Report (Appendix D-6).

The proposed development will provide members of the communities with improved living conditions, social infrastructure, and access to amenities. This development will also benefit people in the existing community of Marikana. The proposed development is designed in a manner that important infrastructure such as safe bus stops, clear foot paths and improved roads are to be introduced into the town. This will improve the safety of all commuters in the town as a whole.

4.2 OPTION 2

The study area includes a proposal for township establishment with sixteen (16) farm portions that measure approximately 118,6296 hectares (ha) in extent. The study area is surrounded by multiple communities within the Marikana area namely, Marikana West, to the north-west, along Karee Road; Lonmin, to the far north-west also along Karee Road; Maditlhokwa to the south-west and Lapologang to the far south-west.

These properties will accommodate ±1800 units as opposed to 1700 for Option 2. Supporting social infrastructure will include primary school, sports fields and a pre-school.

5 DESCRIPTION OF THE POLICY AND LEGISLATIVE CONTEXT

5.1 TRIGGERED LISTED ACTIVITY

The proposed development is listed in GNR 327, Listing Notice 1, which list activities that should be subjected to Basic Assessment process in order to obtain Environmental Authorisation. Prior to the commencement of the development of the proposed development, Tharisa Mine is required to acquire an Environmental Authorisation. The triggered activity is shown in Table 8.

Table 8 Triggered Activity

GNR 327: Listing Notice 1	
Activity 28	Residential, mixed, retail, commercial, industrial, or institutional developments where such land was used for agriculture, game farming, equestrian purposes, or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.
GNR 324: Listing Notice 3	
Activity 14	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. North West: i. World Heritage Sites; core of biosphere reserve; or sites or areas identified in terms of an international convention; ii. A protected area including municipal or provincial nature reserves as contemplated by NEMPAA or other legislation; iii. All Heritage Sites proclaimed in terms of National Heritage Resources Act, 1999 (Act No. 25 of 1999);

	iv. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority; v. Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; or vi. Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland.

5.2 POLICIES AND LEGISLATIVE CONTEXT

This section provides an overview of the governing legislation identified which may relate to the proposed project. A summary of the applicable legislation is provided in the table below (Table 9).

Table 9 Policies and legislation applicable to the proposed activity

APPLICABLE LEGISLATION AND GUIDELINES	REFERENCE WHERE APPLIED
A description of the policy and legislative context within which the development is proposed including an identification of all legislation, plans, policies, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process	
NATIONAL LEGISLATION/ POLICY/ PLANS/ PROGRAMMES	
The Constitution of the Republic of South Africa 1996, (Act No. 108 of 1996)	Section 24 of the Constitution of the Republic of South Africa provides the overarching environmental legislative framework for environmental management. According to this section: "Everyone has the right: to an environment that is not harmful to their health or well-being; and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that-Prevent pollution and ecological degradation; Promote conservation; and Secure

	ecologically sustainable development and use of natural resources while promoting justifiable economic and social development
National Environmental Management Act 1998, (Act No. 107 of 1998)	Green Gold Group has been appointed to conduct an Environmental Impact Assessment for the proposed project in line with EIA Regulations 2014 as amended in 2017, of the National Environmental Management Act 107 of 1998 as amended in 2017. Submission of Basic Assessment Report and Environmental Management Programme Report to the Competent Authority as required by NEMA.
National Environmental Management: Waste Act 2008, (Act No. 59 of 2008)	The Waste Act regulates waste management in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation. This act is applicable to the proposed project as the waste generated throughout the project's phases must be handled and disposed of in terms of this act.
National Heritage Resources Act No. 25 (1999).	Section 36 of the NHRA: SAHRA permits are issued for the relocation of human remains / graves /burial grounds that are older than 60 years old and graves of victims of conflict (including. colonial conflicts and liberation struggle conflicts).
National Road Traffic Act (Act No 93 of1996)	An abnormal load/vehicle permit may be required for vehicles carrying large construction machinery. These include route clearances and permits will be required for vehicles carrying abnormally heavy or abnormally dimensioned loads. All related traffic regulations must be adhered to

	according to traffic laws stated within the Nation Road traffic Act.
National Environmental Management Air Quality Act (No. 39 of 2004)	The management of air quality in South Africa is legislated under the National Environmental Management: Air Quality Act, Act No. 39 of 2004 (NEM: AQA), with the applicable South African National Standards (SANS) for common air pollutants and monitoring guidelines being published in SANS 1929:2004. Section 32(b) of the NEM: AQA states that the minister may prescribe steps to be undertaken to prevent dust nuisance. An air quality study has been completed for the proposed project, to ensure that the proposed project will be able to adhere to the standards stipulated within this act.
Occupational Health and Safety Act (No 85 of 1993)	The Act provides for the health and safety of persons at work and for the health and safety of persons in connection with the use of machinery; the protection of persons other than persons at work, against hazards to health and safety arising out of or in connection with the activities related to the people's work.
Employment Equity Amendment Act, 2013 (Act no. 47 of 2013)	This act provides for employment equity; and to provide for matters incidental thereto. For implementation of the proposed project, there must be a diverse and balanced amount of the people employed e.g. females should be equal as males, all age and race groups should be employed

6 MOTIVATION FOR THE NEED AND DESIRABILITY FOR THE PROPOSED DEVELOPMENT

When considering an application submitted under the EIA Regulations, the relevant competent authority must take several factors into consideration, including the need for, and desirability of the activity. Tharisa Mine is an opencast mining operation that produces chrome and platinum group metals (PGM) concentrate. Tharisa holds several environmental authorisations, licences, and permits including its mining right which was granted to Tharisa in September 2008 in terms of Section 23 of the Mineral and Petroleum Development Act (Act 28 of 2002).

The communities of Lapologang and Mmaditlokwa are currently located in proximity to Tharisa mining operations and this poses a threat to their health and safety. The relationship between the mine and the community has become volatile due to the stresses and poor quality of living the members of the community are experiencing. This coupled with a sense of helplessness can result in large scale unrests and protests.

Tharisa Mine is therefore assessing different land parcels around Marikana area to which the communities can be resettled to formal houses. It should be noted that availability of land is a huge challenge and a willing seller principle is one of the determining factor regarding land that Tharisa can purchase for resettlement purposes.

The proposed development will provide members of the communities with improved living conditions, social infrastructure, and access to amenities. This development will also benefit people in the existing community of Marikana. The proposed development is designed in a manner that important infrastructure such as safe bus stops, clear foot paths and improved roads are to be introduced into the town. This will improve the safety of all commuters in the town as a whole.

The proposed mixed residential development has the potential to promote job creation in the town of Marikana. These communities experience high levels of unemployment and job insecurity. Local goods and services may be sourced for the project for short term employment opportunities for the community. In the long term, more people from the community would be able to offer their services in the new schools and other facilities that have been proposed for the development.

7 PROVISION AND MANAGEMENT OF SERVICES

7.1 SOLID WASTE MANAGEMENT

The development will be integrated into the existing municipal waste collection systems of the town of Marikana. Waste will be collected by the municipality weekly and then disposed of at a licensed landfill site.

7.2 LIQUID WASTE/EFFLUENT

There is no sewage infrastructure in proximity to the proposed project sites. The closest Water Works Treatment Plant is located in Wonderkop and an increase in capacity to accommodate the proposed development would be required.

The sewer flow from the development will be greater than 1.5Ml/d, which is the capacity for a package plant. Therefore, a new wastewater treatment plant will be required. The nearest WWTP at Wonderkop will not have capacity to carry the new development. It would be cheaper to place the WWTP near the development to avoid conveyance costs should it be placed at Wonderkop. The proposed position of the WWTP would be to the south-eastern side of the development. The sewer reticulation will comprise of uPVC class 34 sewer pipes ranging from 110mm to 160mm in diameter

7.3 WATER USE

No bulk water is currently being distributed to the proposed development. The bulk water supplier for Rustenburg Local Municipality is Rand Water. The water demand for 1700 erven is about 400l per unit per day (1,7ml per day average demand). Therefore, the storage capacity required would 2,0ml per 24 hours storage. Rand Water officials recommended that an alternative water source such as boreholes be further investigated for the proposed development.

The water connection will be constructed and located at the development boundary. The Applicant, Tharisa Minerals, pledged to construct the supply line. The water shall be stored in a reservoir/s before it is distributed. The reservoir capacity shall be 2000Kl, enough for a 2 day's supply in case of water or infrastructure problems. He reservoirs can be made in 2 steel elevated tanks of 1000Kl capacity each. The water reticulation, which will be a combined domestic and fire water will comprise of pipes ranging from 63mm to 160mm in diameter of uPVC class 12 pipes.

7.4 ENERGY USE

The proposed development will receive their energy supply from Eskom's Tharisa substation. There is currently an existing 11kVoverhead feeder line that runs from the substation towards the proposed development area. However, it is projected that the development will require 5130 kVA for freehold erven at 3 kVA per erf and 1686 kVA for high density units which may use an estimated 2 kVA per unit. These values are preliminary values pending a capacity investigation by Eskom. It is recommended that the best manner of providing electrical engineering services is in accordance with Eskom's Urban Wood Standard, with the use of a full overhead system.

The electrical engineer will engage the Rustenburg Municipal or Eskom engineer to determine the availability of power for the proposed development.

7.5 ROADS

A traffic impact assessment was done for the proposed development, the report is attached in Appendix D-3. The existing provincial and local road network in the vicinity on the site, which are summaries as follows D1325 (Marikana Rd): Class 4a collector street, district road, with the 32m road reserve. Marikana Road is a single carriageway, tarred with one lane per direction running in the north-south direction. The road forms part of the public transport and freight network in the study. D2170: Class 4a collector street, district road, with the 32m road reserve. D2170 Road is a single carriageway, gravel with one lane per direction running in the east-west direction. The road forms the northern boundary of the study area. The road currently provides access to Sibanye Stillwater to the east of the site.

Given the nature of the development, the trip generation rate provided in the "TMH 17 SA Trip Data Manual Version 1.0, 2012" was considered in the determination of the new development trips. The development consists of ±1700 mixed density residential units. The development is expected to generate approximately 758 vehicle trips in the AM and PM peaks.

Traffic safety on mobility roads requires access spacing to be as far apart as possible, thus reducing conflict and the need for stopping and starting, but access and side road capacity requirements dictate the opposite - hence a compromise is necessary. The proposed development will have One (1) access, all located along Marikana Road (See Appendix D-3).

NON-MOTORISED INFRASTRUCTURE

Traffic safety on mobility roads, appropriate traffic calming measures and infrastructure was considered. Details of the required non-motorised infrastructure will be provided on the Site

Development Plan (SDP). A 1.5meter pedestrian walkway is recommended along the frontage of the development along Marikana Road also along the internal main roads.

PUBLIC TRANSPORT CONSIDERATION

The development is envisaged to cater for low-income to middle income households. It is therefore expected that a sizable number of trips would be made by public transport. A number of on-street public transport facilities (lay-byes) will be planned along the main roads. Marikana Road and Karee Road form part of the public transport network in the study area. The development is directly adjacent the public transport network. This will promote the use of the public transport which is the key objective on the National Government of Transport. Two bus stops / Public transport facilities are proposed on the upstream and downstream of the main access to then development.

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8 THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE RECEIVING ENVIRONMENT

8.1 CLIMATE

The town of Marikana falls within a moderate macro climactic region. It is characterised by summer rainfalls with very dry winters with temperatures ranging from 35.3°C and -3.3°C for January and June respectively. Marikana experiences Mean Annual Precipitation (MAP) ranging between 600 mm and 700 mm and frost is frequent in the winter months. Climate of the region is classified as temperate, and rainfall in the area peaks during the warmer summer months.

8.2 TOPOGRAPHY

The project site has a generally flat terrain with relatively low slopes percentage of between 0% and 6%. Some irregularities were identified with slope percentage increasing to approximately 11%. This indicates a non-uniform topography.

8.3 SOILS

Geotechnical studies undertaken revealed that the soil profile from the proposed site consists of a layer of topsoil, colluvium, residual norite and soft to medium hard rock norite layers. The topsoil layer was topsoil layer extended from the surface to a depth of between 0.0 m to 0.2 m below current ground level. The topsoil was characterised by dry, dark greyish to black, clay with grass roots which was generally of firm in consistency.

The layer of colluvium was made up of slightly moist, black, slickenside, clay with plant roots in some test pits and was generally of stiff in consistency. This layer was found 0.2 m to 1.2 m below current ground level.

Residual soils are formed from the complete in-situ weathering of the underlying norite bedrock. This layer was described as slightly moist, greyish brown speckled black, intact, silty sand and was generally of medium dense to dense in consistency. The residual soils were encountered below colluvium layer at an average shallow depth ranging from 1.2 m to 1.5 m below current ground level.

Hard rock norite was characterised as soft to medium hard rock, typically described as beige to brown stained orangey brown and black on joints, moderately weathered, medium grained and massive structure.

Potentially expansive silty clay soils were identified throughout the proposed development sites. However, the reports states that based on visual inspection, the expansive layer associated with clay minerals does pose a threat to the site on topsoil and colluvium layers.

8.4 GEOLOGY

Rustenburg Local Municipality is situated within the Bushveld Complex. The Bushveld Complex is a geological belt and the particular part of the bushveld complex within which the municipality lies, is rich in mineralised districts and therefore has able to produce successful platinum mine such as Tharisa Mine.

The proposed sites are underlain by norite of the mafic rock sequence, the Rustenburg Layered Suite. The risk of seismic events for the proposed site is moderate risk with very light potential damage to structures This includes both natural and mining-induced seismicity.

8.5 HYDROLOGY

8.5.1 Surface Water

Marikana falls within the quaternary catchment A21K. The proposed sites form part of the Crocodile and Marico Water Management Area. The Sterkstroom is the closest watercourse to the proposed development site. The Marico, Elands (West), Crocodile (West), Pienaars and Olifants are perennial rivers that cross the region however, no perennial tributaries arise in the region.

8.5.2 Groundwater

Topography has a large influence on the general groundwater flow of an area. Ground water in and around the site is typically between 10m and 30m below ground level. Groundwater flow is from areas of higher elevation to lower lying areas in the north and towards water courses which occur in lower lying areas. The site is underlain by a shallow upper weathered aquifer and a deeper fractured aquifer. The interface between these features is relatively impermeable. Ground water is generally of good quality and can either be classified as ideal or good.

8.5.3 Wetlands

There is a pond which is characterised as an artificial wetland on the south-western border of the site (See environmental sensitivity map in Appendix A). Richer vegetation and wet soils are clear indicators of waterbodies in the project areas.

The pond is the channel running through the woodland in the south-eastern part of the site and is most likely artificial and due to irrigation water leaking on to the ground over an extended period of time.

8.6 BIODIVERSITY

8.6.1 Flora

At a macro level, the project area is situated within the savanna biome. Savanna vegetation in one of the most widespread biomes in Africa and are characterised by a herbaceous layer dominated by grasses and a discontinuous to sometimes very open tree layer.

At a local level, the Marikana thornveld covers the entire extend of the proposed site. It is characterised by open *Vachellia karroo* woodland, which occurs in valleys and on undulating plains and hills. Shrubs are denser along drainage lines, on termitaria and rocky outcrops. Marikana Thornveld is listed as Vulnerable in The National List of Ecosystems that are Threatened and need of protection (GN1002 of 2011), published under the National Environmental Management: Biodiversity Act (Act No. 10, 2004).

The project site falls within Critical Biodiversity Area 2 and Ecological Support Area 2. However, it is recommended that the areas highlighted as highly sensitive be conserved. Due to the increasing encroachment and high levels of disruption of land within and around the project site, it can be expected that the areas will deteriorate overtime.

Two protected tree species were identified on the proposed sites namely, Berche*mia zeyheri* (Pink ivory) and *Boscia albitrunca* (Shepard's Tree). These species may not be cut or damaged as they are protected by the List of Protected Tree Species under the National Forests Act, 1998 (Act No. 84 of 1998) (NFA). The study site is also generally dominated by alien and invasive plant species which alter the structure, composition and functioning of ecosystems in the area. These species may be incorporated into the green space designed for the area.

8.6.2 Fauna

An IUCN Red List Spatial Data and AmphibianMap was used in order to determine expected amphibian species for the project site. There are 23 amphibian species expected to occur within the area, however none of these species are threatened.

Similarly, the IUCN Red List Spatial Data and the ReptileMAP database was used to determine the expected reptilian species in the project area. A total of 91 reptile species are expected to occur within the project site. Three of the species are regarded as threatened.

The IUCN Red List Spatial Data lists 87 mammal species that could be expected to occur within the project site. Of the small mammals identified as Species of Conservation Concern (SCC) by the IUCD Red Data List Spatial Data, two species, *Atelerix frontalis* (South African Hedgehog) and *Felis nigripes* (Black-footed cat), are moderately likely to occur. The project site is a suitable habitat for the two species hence the increased likelihood of occurrence.

Southern African Bird Atlas Project 2 database was utilised to determine the expected avifaunal species for the project site. It was determined that 339 bird species are expected to occur within the area. Of the 12 species on the SCC list, three species, *Aquila rapax* (Tawny Eagle), *Falco biarmicus* (Lanner Falcon) and *Polemaetus bellicosus* (Martial Eagle) have a moderate likelihood of occurrence. *Pterocles gutturalis* (Yellow Throated Sandgrouse) is categorised as near threat. During field studies, the presence of the Yellow Throated Sandgrouse was confirmed.

8.7 AIR QUALITY

Marikana is a mining town and therefore the proposed development site is surrounded by mining activities. Sibanye Stillwater old tailings dam is within 1km on the eastern side of the proposed site. Air dispersion model was done, taking into consideration that the mentioned tailings dam might be remind in the future. The dispersion model shows that prevailing winds in the area are north-westerlies most of the year, thus blowing away from the proposed site. The Air Quality Report is attached in Appendix D-1.

Dust and particulate matter are the main air pollutants emitted as a result of the mining operations. The emissions were quantified utilising available emission factors, and the air quality impacts were assessed via dispersion modelling. The cumulative effects of all emission sources at the Tharisa Mine were taken into consideration. In addition, the potential re-mining of the tailings at Sibanye-Stillwater was also included in the modelling. Based on the dispersion modelling and the resulting concentrations, the following can be concluded:

- The daily dust depositions at both the north and south development areas were within the residential guideline of 600 mg/m^2/day.
- The modelled maximum 24-hour (99th percentile) and annual $PM_{2.5}$ concentrations were within the standards of 40 µg/m^3 and 20 µg/m^3 respectively at both the north and south development areas.

8.8 HERITAGE

Heritage impact study was undertaken for the entire Portion 149 of the Farm Rooikoppies, even though only the eastern side of Marikana Road will be utilised for the proposed development. On the proposed part of Portion 149, no sites with heritage sensitivity were observed. The study is mindful that some important discoveries may occur during the preparation of the site (foundation phase). If this happens operations should be halted, and the provincial heritage resources authority or SAHRA notified in order for an investigation and evaluation to be undertaken.

8.9 REGIONAL SOCIO-ECONOMIC STRUCTURES

The information below was sourced from Rustenburg Local Municipality Integrated Development Plan (IDP) 2017/22 and Paulisto Trading Enterprise's Community Survey Report of 2019. This document serves as a plan or guide for the development of the municipality. It promotes coordination between local and national government and also with the members of the community. The statistics are obtained for the year 2017.

8.9.1 Demographics

Bojanala District Municipality had a population of 1 640 863 people with Rustenburg Local Municipality accounting for 645 000 of the population in 2017. The population density (number of people per km^2) was 179,84. Rustenburg Local Municipality is categorised as a Medium urban population (100 000-600 000). It has recorded a population growth rate of above 20%. According to the IDP 2017/22, 27.9% of people in Rustenburg Local Municipality are living in poverty.

8.9.2 Gender

Rustenburg Local Municipality recorded 350 000 males and 295 000 females in the municipality. This split into a ratio of males to females at 118.4:100. Many of the males in the municipality are employed either in mining, agricultural sector and to a smaller extent other industries.

The 2019 survey revealed that 62% of the people employed in Mmaditlhokwa are males while 38% are female. The higher ratio of males to females in the employed may be attributed to the highly intensive industries such as mining (accounting for 37% of the local economy) which is generally extensively physical.

8.9.3 Age and Population group

Rustenburg Local Municipality is made up of 90% African people. Only 8,3% of the population is white and less than one percent being Asian and Coloured. The greatest percentage of the population is the young working class (25 - 44 years old). They account for 41.1% of the population. This age group is followed by babies and kids (0 -14 years old) at 24.3% and then the older working class aged between 45 and 64 years old. The smallest age group is that of retired and old age (65>) at around 1%. The proportion of households that are headed by males (76%) is substantially larger than those headed by females (24%).

8.9.4 Unemployment

Unemployment is a big concern in South Africa and the communities of Mmaditlhokwa and Lapologang are not exception to this. A majority of the land uses and sources of income for

the communities arise from agricultural activity as well as mining. According to a study undertaken by Paulisto Trading Enterprise, 38% of people living in Mmaditlhokwa are employed in the mining sector while 34% of the community is unemployed and the remaining being distributed between other industries, self-employment and retirement/pension.

9 DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED ACTIVITY

9.1 DETAILS OF ALL ALTERNATIVES CONSIDERED

Alternatives in relation to a proposed activity means different means of meeting the general purpose and requirement of the activity. The definition is given in terms of the NEMA Regulations, 2014 (as amended, 2017).

The Applicant (Tharisa Mine) approached several landowners in the Marikana area with an intention to purchase a piece of land for the proposed development. Two landowners expressed their willingness to sell their properties. The most suitable land parcels were identified and specialists' studies done on them. The Preferred Option 1 has the least environmental impacts, hence it is put forward in this report as the preferred option. Option 2 has a larger piece of land covered in indigenous vegetation, wetland areas as well as a rehabilitated open cast mine. Although these sensitive areas have been demarcated and buffered in the layout plan, it will be difficult to control movement of people since these sensitive areas are in the middle of the site.

10 DETAILS OF PUBLIC PARTICIPATION PROCESS

10.1 OBJECTIVES OF THE PUBLIC PARTICIPATION PROCESS

The PPP is designed to achieve the following objectives:

- To ensure that I&APs are well-informed about the proposed project.
- To provide I&APs sufficient opportunities to engage and provide input and suggestions regarding the proposed project.
- To verify that stakeholder comments have been accurately recorded.
- To draw on local knowledge in the process of identifying environmental and social issues associated with the proposed project, and to involve I&APs in identifying ways in which these can be addressed.
- To comply with legal requirements.

10.2 PHASES OF PUBLIC PARTICIPATION

- The PPP is designed in three main phases, namely:
- Basic Assessment phase
    - Identification of stakeholders
    - Notification of the public of the formal process
    - Distribution of a Background Information Document (BID), placement of newspaper adverts and site notices
    - Gathering concerns, suggestions, and comments from I&APs
- Decision making phase
    - With completion of the authorisation process all registered I&APs will be notified of the decision made by the competent authority and will provided with details should they want to appeal the decision.

10.3 COMPILATION AND DISTRIBUTION OF PUBLIC PARTICIPATION DOCUMENTS

The public participation process (PPP) is an integral part of the Basic Assessment process, to inform and involve interested and affected parties. The following documents were compiled and distributed and can be found in Appendix E.

- Invitation emails were sent to stakeholders on the 18th of March 2022 (See Appendix E-2).
- The Background Information Document (BID) was distributed to I&APs on the 17th of March 2022 (See Appendix E-3).
- Newspaper Advertisement was published on the 18th of March 2022 (See Appendix E-4).
- Site Advertisement placed on the 17th of March 2022 (See Appendix E-5).

- Interested and Affected Parties register was compiled and being updated as additional parties register their interests (See Appendix E-1).

10.4 SUMMARY OF THE ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Issues raised by the public are provided in the table below.

Table 10 Summary of issues raised by Interested and Affected Parties

INTERESTED AND AFFECTED PARTIES	DATE COMMENTS WERE RECEIVED	ISSUES RAISED	EAPS RESPONSE TO ISSUES AS MANDATED BY THE APPLICANT
Thabo Macheche Lapologa Community Chair Person	22/03/2022	Green Gold Group should have held a meeting with the community before placing site adverts.	Public meeting will be held during Phase 2 of Public Participation Process. The site and newspaper adverts are placed during Phase 1 to make the community and other stakeholders aware that an environmental impact study is underway.
		Tharisa Minerals should have consulted the community before identifying the land for relocation.	The land is privately owned and the owners who are willing to sell were consulted.
		Lapologang community will not relocate to Rooikoppies, they have title deeds on the properties they live in.	Comment noted.
O. Otowe Acting Head of Roads	24/03/2022	The Department provided inputs to be taken into consideration when designing roads, stormwater, land-use	Comments were acknowledged and copy of the comments distributed to project team (Townplanner,

		along the road as well as building restrictions.	Traffic Engineer and Civil Engineer) for incorporation in their plans and designs.
Mr. Ettienne	06/04/2022	Regarding the development mentioned, it is of great concern for myself as well as my partner that the development does not include our property 'Portion 56 ROOIKOPPIES 297 JQ'. Our property is in the middle of your proposed development area.	There are no properties in the middle of the proposed Option 1. 16 portions proposed for option 2 are owned by one person with no other property inside.
		The development is going to create an opportunity for squatters to occupy our land illegally. This is an opportunity for people to squad next to a low-cost residential area eighter North or South with Potion 56 in the centre, as seen all over South Africa as well as the Mine's Operational areas.	Comment noted.
		This process does not follow any recognised involuntary resettlement guidelines, neither the IFC guidelines (which Tharisa is obligated to follow since they claim to adhere to the Equator Principles) nor the	Environmental Impact Assessment (EIA) and Resettlement are two different processes. The study being undertaken by Gren Gold Group is for EIA process only.

		recently published South African DMRE Resettlement Guidelines. There appears to be no Resettlement Plan.	
		The consultation process appears to be very flawed, e.g., having information documentation related to the process only in English is problematic. It should in the very least also be in Tswana and Afrikaans, which are the most frequently spoken languages in the area.	Public meetings are going to be held in languages spoken by affected communities.
		This is a mining-induced involuntary resettlement, which means resettlement is the mining company's expense, not that of government. To expect government to provide RDP housing for persons involuntary resettled is far-fetched. This is not eviction, it is resettlement.	Comment noted. Tharisa will follow the due processes once the land has been acquired.
		These are not "informal settlements". Many residents have title deeds for the properties they reside in.	Title deeds not 'provided to support the allegation.

11 PROPOSED METHOD OF ASSESSING THE ENVIRONMENTAL IMPACTS

The assessment of the potential impacts is guided by Guideline 5: Assessment of Alternatives and Impacts developed in line with EIA Regulations. The objective of the assessment of impacts is to identify and assess all the significant impacts that may arise from the undertaking of an activity. The findings of impact assessments are used to inform the competent authority's decision as to whether the activity should be authorised, authorised subject to conditions that will mitigate the impacts to within acceptable levels or should be refused.

Different types of impacts may occur from the undertaking of an activity. The impacts may be positive or negative and may be categorised as being direct (primary), indirect (secondary) or cumulative impacts (additional to existing).

Direct impacts are impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity (e.g., noise generated by blasting operations on the site of the activity). These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable.

Indirect impacts of an activity are indirect or induced changes that may occur as a result of the activity (e.g., the reduction of water in a stream that supplies water to a reservoir that supplies water to the activity). These types of impacts include all the potential impacts that do not manifest immediately when the activity is undertaken, or which occur at a different place as a result of the activity.

Cumulative impacts are impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities (e.g. discharges of nutrients and heated water to a river that combine to cause algal bloom and subsequent loss of dissolved oxygen that is greater than the additive impacts of each pollutant). Cumulative impacts can occur from the collective impacts of individual minor actions over a period of time and can include both direct and indirect impacts.

The first stage of risk/ impact assessment is the identification of environmental activities, aspects and impacts. This is supported by the identification of receptors and resources, which allows for an understanding of the impact pathway and an assessment of the sensitivity to change. The definitions used in the impact assessment are presented below:

- An **activity** is a distinct process or task undertaken by an organization for which a responsibility can be assigned. Activities also include facilities or infrastructure that is possessed by an organization.
- An **environmental aspect** is an element of an organisation's activities, products and services which can interact with the environment. The interaction of an aspect with the environment may result in an impact.
- **Environmental risks/aspect** are the consequences of these aspects on environmental resources or receptors of particular value or sensitivity, for example, disturbance due to noise and health effects due to poorer air quality. In the case where the impact is on human health or wellbeing, this should be stated. Similarly, where the receptor is not anthropogenic, then it should, where possible, be stipulated what the receptor is.
- **Receptors** can compromise, but are not limited to, people or human-made systems, such as local environment, communities and social infrastructure, as well as components of the biophysical environment such as wetlands, flora and riverine systems.
- **Resources** include components of the biophysical environment.

11.1 IMPACTING RATING

The significance of the impact is assessed by rating each variable numerically according to the defined criteria. Refer to the Appendix G. The purpose of the rating is to develop a clear understanding of influences and processes associated with each impact. The severity, spatial scope and duration of the impact together comprise the consequence of the impact and when summed can obtain a maximum value of 15. The frequency of the activity and the frequency of the impact together comprise the likelihood of the impact occurring and can obtain a maximum value of 10. The values for likelihood and consequence of the impact are then read off a significance rating matrix and are used to determine whether mitigations are necessary or not. The assessment of significance is undertaken twice, without mitigations and with mitigations. The assessment criterion is illustrated in Table 11 below.

Table 11 Criteria for assessing significance of impact

a. Likelihood descriptors

PROBABILITY OF IMPACT	RATING
Highly unlikely	1
Possible	2

Likely	3
Highly likely	4
Definite	5
SENSITIVITY OF RECEIVING ENVIRONMENT	**RATING**
Not sensitive	1
With limited sensitivity	2
Moderately sensitive	3
Highly sensitive	4
Critically sensitive	5

b. Consequence descriptors

SEVERITY OF IMPACT	**RATING**
Insignificant impact on ecosystem structure and function unchanged	1
Small impact on ecosystem structure and function largely unchanged	2
Significant impact on ecosystem structure and function moderately altered	3
Great/harmful impact on ecosystem structure and function largely altered	4
Disastrous impact on ecosystem structure and function seriously to critically altered	5
SPATIAL SCOPE OF IMPACT	**RATING**
Activity specific/0,5 ha impacted	1
Development specific/ within the site boundary	2
Local area/ outside the site boundary	3

Regional outside 5km of the site boundary	4
Entire habitat unit/ entire system/ 5000 ha impacted	5
DURATION OF IMPACT	**RATING**
One day to one month	1
One month to one year	2
One year to five years	3
Life of operation or less than 20 years	4
Permanent	5

Table 12 Significance rating matrix

	Consequence (severity + spatial scope + duration)														
Likehood (probability + sensitivity)	**1**	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45
	4	8	12	16	20	24	28	32	36	40	44	48	52	56	60
	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75
	6	12	18	24	30	36	42	48	54	60	66	72	78	84	90
	7	14	21	28	35	42	49	56	63	70	77	84	91	98	105
	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120
	9	18	27	36	45	54	63	72	81	90	99	108	117	126	135
	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150

Table 13 Positive/Negative mitigation ratings

SIGNIFICANCE RATING	VALUE	NEGATIVE IMPACT MANAGEMENT RECOMMENDATION	POSITIVE IMPACT MANAGEMENT RECOMMENDATION
Very high	126-150	Improve current management	Maintain current management
High	101-125	Improve current management	Maintain current management
Medium-high	76-100	Improve current management	Maintain current management
Medium-low	51-75	Maintain current management	Improve current management
Low	26-50	Maintain current management	Improve current management
Very Low	1-25	Maintain current management	Improve current management

The following points were considered when undertaking the assessment:

- Risks and impacts were analysed in the context of the project's area of influence encompassing:
- Primary project site and related facilities that the client and its contractors develop or control;
- Areas potentially affected by impacts from unplanned but predictable developments caused by the project that may occur later or at a different location.

Risks/Impacts were assessed for all stages of the project cycle including:

- Pre-construction
- Construction
- Rehabilitation

11.2 MITIGATION MEASURE DEVELOPMENT

The following points present the key concepts considered in the development of mitigation measures for the proposed development:

- Mitigation and performance improvement measures and actions that address the risks and impacts are identified and described in as much detail as possible.
- Measures and actions to address negative impacts will favor avoidance and prevention over minimization, mitigation or compensation.
- Desired outcomes are defined and have been developed in such a way as to be measurable events with performance indicators, targets and acceptable criteria that can be tracked over defined periods, with estimates of the
- resources (including human resources and training requirements) and responsibilities for implementation.

11.3 RECOMMENDATIONS

Recommendations are developed to address and mitigate impacts associated with the proposed development. These recommendations also include general management measures which apply to the proposed development as a whole. Mitigation measures are developed to address issues in all phases throughout the life of the operation from planning, through construction, operation and maintenance of infrastructure installed and constructed within the development.

12 SUMMARY OF THE POSITIVE AND NEGATIVE IMPACTS

Potential environmental impacts associated with the proposed activity for option one (preferred option) are summarised in the tables below. The complete Impact Assessment is attached as Appendix G.

12.1 PLANNING AND DESIGN PHASE

Table 14 Planning and design phase impacts

PROPOSED ACTIVITIES	POTENTIAL IMPACTS
Engineering designs	Design incompatible and non-conducive to the environment Risk of incorrect design and site layout.
Legislative obligations	Non-compliance with legal requirements of national and provincial legislation
Public involvement process	Poor communication and lack of transparency of project information that may lead to conflict.

12.2 CONSTRUCTION PHASE

Table 15 Construction phase impacts

PROPOSED ACTIVITIES	POTENTIAL IMPACTS
Construction works	Non-compliance with regulatory requirements.
	Possible incidents and injury to workers due to negligence.
	Fire Hazard
	Poor Waste Management: littering and general waste.
	Surface water contamination due to spills from the storage of hazardous goods and leaks from vehicles and indiscriminate waste disposal.
	Disturbance or destruction of sites, features or artefacts of archaeological and/or historical importance.
	Increased ambient dust and exhaust emission generation.
	Contamination of aquatic water systems.
	Contravention of regulations, contamination of the receiving environment.
	Sourcing of local goods and services.

	Employment opportunities for locals
Establishment of the construction camp sites	Loss of indigenous vegetation contamination of surrounding environment.
	Visual impact
The storage and use of equipment and hazardous material	Pollution of soils and Groundwater by hydrocarbons and other materials
Socio-economic	Conflicts and community unrest.
Excavation and installation work	Traffic congestion and accidents
	Ambient noise generation
Land-use / Earthworks / Stormwater	Erosion and sedimentation. Area flooding due to poor stormwater management.
Stockpiles/spoil areas	Erosion and sedimentation.

12.3 OPERATIONAL PHASE

Table 16 Operational phase impacts

PROPOSED ACTIVITIES	**POTENTIAL IMPACTS**
Daily operations of the applicant	Poor Waste Management: littering
Daily operations: Use of infrastructure and services	Potential failure of infrastructure: possible water leaks and power cut from poor electricity connections.
	Provision of adequate and safe services and infrastructure.
Daily operations: Socio-economic	Employment opportunities within the proposed development.

13 CONCLUDING ENVIRONMENTAL STATEMENT

The proposed mixed residential development has been designed and a layout developed with the consideration of multiple specialist reports across various disciplines relating to the proposed activity. The potential impacts, both positive and negative, were taken into consideration in various phases of the development, namely, the planning and design phase, the construction phase, the operational phase and the rehabilitation phase.

The potential impacts of the proposed project that have been identified in the planning and design phase of the development have been mitigated to low and very low impact significance. These impacts relate to possible risk associated with non-compliance to legal requirements, incorrect site layout, poor communication and associated harm to the environment due to inadequate planning and design.

The potential impacts that have been identified in the construction phase relate to legislative requirements, flora and fauna, the contamination and pollution of the physical environment, health and safety of construction workers, waste management on-site and socio-economic impacts. These potential impacts have been mitigated from low to very low impact significance. There are however positive impacts that can arise from the development during the construction phase. Through the CLO and the local council, job opportunities may arise for members if the community as local goods and services may be utilised during the construction phase of the development.

The operational phase's potential impacts include poor waste management practises and potential failure of infrastructure resulting in possible water leaks and power cut from poor electricity connections. These negative impacts with mitigation have a very low impact/significance. There is a high possibility that the residents may encroach into other properties demarcated for other uses. The municipality has the responsibility to enforce by-laws pertaining to occupation of land. Surround landowners are advised to fence off their properties so that they are easily identifiable and demarcated from the development site.

It is also important to consider the possible positive impacts from the development. The proposed development provides many positive socio-economic benefits with high (positive) impact significance that will occur during the operational phase of the proposed development. The sourcing of local goods and services will enhance the local income and contribute to the improvement of quality of living of the area. Job opportunities will be created for the development which will assist in tackling the high unemployment experienced in the area. The proposed development provides much needed amenities and services (i.e., improved roads, schools and green spaces) for not only the people of Mmadithlokwa and Lapologang but to also those in the neighbouring communities.

14 RECOMMENDATION FROM ENVIRONMENTAL ASSESSMENT PRACTITIONER

- An environmental authorisation for the proposed development should be granted to the Applicant for Option 1 site.
- The proposed layout plan for Option 1 should be approved by the competent authority
- The Applicant may not make any changes to the layout plan without written approval by the competent Authority.
- A Community Liaison Officer (CLO) must be appointed and a board of local council members be established for all appointments and communications with members of the community.
- Local goods and services must be utilised as much as possible.
- Flora identified as indigenous and/or threatened must be conserved.
- Once the construction has begun the road safety signage and maintenance should be compliance in according to traffic act.
- All watercourses must have 32 m buffer zones around them.
- No development may be done on the demarcated watercourses.
- The Developer may not remove vegetation covering more than 20 hectares.
- Topsoil must be removed and reutilised after construction for establishment of greenspaces.
- All workers must be trained on good practise and all related construction activity they are to complete.
- An approved EMPR should be binding to all workers and all sub-contractors for the life of the project.

15 MONITORING REQUIREMENTS

A summary of the monitoring requirements is listed below. A full list of monitoring requirements for the development and construction are available in Appendix F (In the Environmental Management Programme).

- An Environmental Control Officer (ECO) must be appointed for the duration of the construction phase, who will have the responsibility of ensuring that the mitigation and recommendations that are stipulated within the Basic Assessment report are implemented and ensure compliance with provisions of the EMPr.
- An ECO must be appointed before the commencement of any or construction activities.
- EMPR should be monitored by CEO (Contractor's Environmental Officer), daily during construction activities and by independent ECO monthly.
- The CEO must keep record of all activities on site, monitoring programmes, problems identified, transgressions noted and a schedule of tasks undertaken.
- Dust suppression and air quality monitoring points must be placed at least 20 m from the haul roads and towards the proposed development site for continuous air quality monitoring.