

DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT

PROPOSED KLIPGAT A HILLSIDE TOWNSHIP FORMALISATION AND DEVELOPMENT

DREAD REFERENCE NUMBER: NWP/EIA/15/2016



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Glossary

Activity An action either planned or existing that may result in environmental impacts through pollution or resource use. For the purpose of this report, the terms 'activity' and 'development' are freely interchanged.

Alternatives Different means of meeting the general purpose and requirements of the activity, which may include site or location alternatives; alternatives to the type of activity being undertaken; the design or layout of the activity; the technology to be used in the activity and the operational aspects of the activity.

Applicant The project proponent or developer responsible for submitting an environmental application to the relevant environmental authority for environmental authorisation.

Biodiversity The diversity of animals, plants and other organisms found within and between ecosystems, habitats, and the ecological complexes.

Construction The building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity but excludes any modification, alteration or expansion of such a facility, structure or infrastructure and excluding the reconstruction of the same facility in the same location, with the same capacity and footprint.

Cumulative impact The impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

Decommissioning The demolition of a building, facility, structure or infrastructure.

Direct Impact Impacts that are caused directly by the activity and generally occur at the same time and at the same place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally quantifiable.

Ecosystem A dynamic system of plant, animal (including humans) and micro-organism communities and their non-living physical environment interacting as a functional unit. The basic structural unit of the biosphere, ecosystems are characterised by interdependent interaction between the component species and their physical surroundings. Each ecosystem occupies a space in which macro-scale conditions and interactions are relatively homogenous.

Environment In terms of the National Environmental Management Act (NEMA) (No 107 of 1998) (as amended), "Environment" means the surroundings within which humans exist and that are made up of:

- a) the land, water and atmosphere of the earth;
- b) micro-organisms, plants and animal life;
- c) any part or combination of (i) of (ii) and the interrelationships among and between them; and
- d) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.

Environmental Assessment The generic term for all forms of environmental assessment for projects, plans, programmes or policies and includes methodologies or tools such as environmental impact assessments, strategic environmental assessments and risk assessments.

Environmental Authorisation An authorisation issued by the competent authority in respect of a listed activity, or an activity which takes place within a sensitive environment.
Environmental Assessment Practitioner (EAP) The individual responsible for planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management programmes or any other appropriate environmental instrument introduced through the EIA Regulations.

Environmental Impact Change to the environment (biophysical, social and/ or economic), whether adverse or beneficial, wholly or partially, resulting from an organisation's activities, products or services.

Environmental Impact Assessment (EIA) means the process of collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of that application as defined in NEMA.

Environmental Issue A concern raised by a stakeholder, interested or affected parties about an existing or perceived environmental impact of an activity.

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.

Environmental Management Programme (EMPr) A detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive impacts and limiting

or preventing negative environmental impacts are implemented during the life cycle of a project. This EMPr focuses on the construction phase, operation (maintenance) phase and decommissioning phase of the proposed project.

Fatal Flaw Issue or conflict (real or perceived) that could result in developments being rejected or stopped. In the context of an environmental impact assessment a fatal flaw can be termed as an environmental issue that cannot be mitigated by any means

General Waste Household water, construction rubble, garden waste and certain dry industrial and commercial waste which does not pose an immediate threat to man or the environment.

Groundwater Water in the ground that is in the zone of saturation from which wells, springs, and groundwater run-off are supplied.

Hazardous Waste Waste that may cause ill health or increase mortality in humans, flora and fauna.

Hydrology The science encompassing the behaviour of water as it occurs in the atmosphere, on the surface of the ground, and underground.

Indirect Impacts Indirect or induced changes that may occur as a result of the activity. These types of impacts include all of 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.

Integrated Environmental Management A philosophy that prescribes a code of practice for ensuring that environmental considerations are fully integrated into all stages of the development and decision-making process. The IEM philosophy (and principles) is interpreted as applying to the planning, assessment, implementation and management of any proposal (project, plan, programme or policy) or activity - at local, national and international level - that has a potentially significant effect on the environment. Implementation of this philosophy relies on the selection and application of appropriate tools for a particular proposal or activity. These may include environmental assessment tools (such as strategic environmental assessment and risk assessment), environmental management tools (such as monitoring, auditing and reporting) and decision-making tools (such as multi-criteria decision support systems or advisory councils).

Interested and Affected Party (I&AP) Any person, group of persons or organisation interested in or affected by an activity; and any organ of state that may have jurisdiction over any aspect of the activity.

Mitigate The implementation of practical measures designed to avoid, reduce or remedy adverse impacts or enhance beneficial impacts of an action.

No-Go Option In this instance the proposed activity would not take place, and the resulting environmental effects from taking no action are compared with the effects of permitting the proposed activity to go forward.

Public Participation Process A process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to, specific matters.

Overburden Layers of soil and rock covering a coal seam. In surface mining operations, overburden is removed prior to mining using large equipment. When mining has been completed, it is either used to backfill the mined areas or is hauled to an external dumping and/or storage site.

Rehabilitation A measure aimed at reinstating an ecosystem to its original function and state (or as close as possible to its original function and state) following activities that have disrupted those functions.

Scoping The process of determining the spatial and temporal boundaries (i.e. extent) and key issues to be addresses in an environmental assessment. The main purpose of scoping is to focus the environmental assessment on a manageable number of important questions. Scoping should also ensure that only significant issues and reasonable alternatives are examined.

Sensitive Environments Any environment identified as being sensitive to the impacts of the development.

Significance Significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. magnitude, intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of significance and acceptability). It is an anthropocentric concept, which makes use of value judgements and science-based criteria (i.e. biophysical, social and economic).

Stakeholder Engagement: The process of engagement between stakeholders (the proponent, authorities and I&APs) during the planning, assessment, implementation and/or management of activities.

Sustainable Development Development that meets the needs of current generations without hindering future generations from meeting their own needs.

Watercourse as defined In terms of the National Water Act (Act 36 of 1998).

Wetland In terms of the National Water Act (Act 36 of 1998) a wetland is defined as land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

ACRONYMS

DEA Department of Environmental Affairs
EAP Environmental Assessment Practitioner
EIA Environmental Impact Assessment
EIR Environmental Impact Assessment Report
EMF Environmental Management Framework
EMPr Environmental Management Programme
ESS Environmental Scoping Study
ESR Environmental Scoping Report
READ Department of Rural, Environment and Agricultural Development
I&AP Interested and Affected Party
NEMA National Environmental Management Act
SDF Spatial Development Framework
MLM Madibeng Local Municipality

1. INTRODUCTION

Madibeng Local Municipality (MLM) is proposing to establish a low-cost housing development on Remaining Extent of the Farm Tyne 250 JQ, in Brits. The Farm are located to the south- west of Brits town. Watercube Services (Pty) Ltd was appointed by MOK Development Consultants as independent environmental practitioners to undertake an application for environmental authorisation in the form of a Scoping and EIA for the proposed development on behalf of Madibeng Local Municipality (MLM). The EIA conforms to the December 2014 Environmental Impact Assessment (EIA) Regulations as promulgated in terms of the National Environmental Management Act (Act 107 of 1998).

Details of the Applicant

Madibeng Local Municipality,

Contact Person: Mr July Khoza

Postal Address

P.O. Box 106

BRITS

0250

Purpose of Report

This report represents the Environmental Impact Report (EIR) and has been prepared in accordance with the EIA Regulations published in Government Notice No. R 982. These regulations fall under Section 24(5) read with Section 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA).

The NEMA Section 24(5) stipulates that "listed activities" (i.e. those activities that have been recognised as having a detrimental effect on the environment) require environmental authorisation from the competent authority.

2. ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

The Environmental Impact Assessment (EIA) process is controlled through Regulations published under Government Notice No. R. 983, R. 984 and R. 985 and associated guidelines promulgated in terms of Chapter 5 of the National Environmental Management Act (Act 107 of 1998).

Three phases in the EIA process are typically recognized as follows:

- Application Phase; (Completed)
- Scoping Phase; (Completed)
- EIA Phase.

Application Phase

The Application Phase consists of completing the appropriate application form by the EAP and the proponent and the subsequent submission and registration of the project with the competent authority. An application form was completed and submitted to DREAD, Rustenburg office. The application has been accepted and registered.

Details of Case Officer handling application

Name: Ms Queen Imasiku

Department of Rural, Environmental and Agricultural Development (DREAD)

80 Kerk Street

RUSTENBURG

0300

Tel: 014 597 3597

E-mail: qimasiku@nwpg.gov.za

Registration Number of Application

Department of Rural, Environment and Agricultural Development (DREAD)

Registered the project with reference number NWP/EIA/15/2016.

Scoping Phase

The Scoping Phase aimed to identify the key environmental issues associated with the project, in part through public consultation; consider project alternatives; and provide focus for the EIA Phase. During the Scoping Phase, as per Regulation, a draft Scoping Report was compiled and subjected to 30-day comment period by Interested and

Affected Parties (I&APs). Thereafter, the draft Scoping Report was finalised into the final Scoping Report that was submitted to DREAD.

An acknowledgement and acceptance of the final Scoping Report was received on the 21 November 2016.

EIA Phase

The EIA phase determines the significance of the impact of the proposed activity on the surrounding environment. During the EIA phase, an Environmental Impact Report (EIR) is produced by Watercube Services and submitted to DREAD. The EIR (this report) provides an assessment of all the identified key issues and associated impacts from the Scoping Phase as well as a description of appropriate mitigation measures. All environmental impacts are assessed both before and after mitigation to determine:

- The significance of the impact despite mitigation; and
- The effectiveness of the proposed mitigation measures.

As in the Scoping Phase the public participation process continues to ensure that all (I&APs) are informed of the proposed activity and, provided an opportunity to comment.

Environmental Impact Assessment Report

Objectives of the EIA phase

As per the EIR Regulations, 2014, the objective of the environmental impact assessment process is to, through a consultative process-

- ❖ determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;
- ❖ describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location; identify the location of the development footprint within the preferred site based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;
- ❖ identify the most ideal location for the activity within the preferred site based on the lowest level of environmental sensitivity identified during the assessment;
- ❖ identify, assess, and rank the impacts the activity will impose on the preferred location through the life of the activity;

- ❖ identify suitable measures to avoid, manage or mitigate identified impacts; and identify residual risks that need to be managed and monitored.
- ❖ determine the--
 - I. nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and
 - II. degree to which these impacts- can be reversed; may cause irreplaceable loss of resources, and can be avoided, managed or mitigated;

Content of the Environmental Impact Assessment Report as prescribed in the EIA Regulations, 4 December 2014

- Details and expertise of the Environmental Assessment Practitioner (EAP) undertaking the EIA
- A description of the legislation and guidelines applicable to the proposed activity;
- The location of the activity, including:
 - (i) the 21 digit Surveyor General code of each cadastral land parcel;
 - (ii) where available, the physical address and farm name
 - (iii) the coordinates of the boundary of the property or properties
- A plan which locates the proposed activity or activities applied for as well as the associated
- A description of the scope of the proposed activity, including:
 - (i) all listed and specified activities triggered and being applied for
 - (ii) a description of the associated structures and infrastructure related to the development;
- A description of the policy and legislative context within which the development is located and an explanation of how the proposed development complies with and responds to the legislation and policy context;
- a motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location;
- a motivation for the preferred development footprint within the approved site;
- full description of the process followed to reach the proposed development footprint within the approved site, including:
 - (i) details of the development footprint alternatives considered;
 - (ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;

- (iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;
- (iv) the environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;
- (v) the impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impact:
 - (1) can be reversed;
 - (2) may cause irreplaceable loss of resources; and
 - (3) can be avoided, managed or mitigated;
- (vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;
- (vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;
- (viii) the possible mitigation measures that could be applied and level of residual risk;
- (ix) if no alternative development locations for the activity were investigated, the motivation for not considering such; and
- (x) a concluding statement indicating the preferred alternative development location within the approved site;
- (xi) a full description of the process undertaken to identify, assess and rank the impacts the activity and associated structures and infrastructure will impose on the preferred location through the life of the activity, including:
 - (1) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and
 - (2) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;
- (xii) an assessment of each identified potentially significant impact and risk, including
 - (1) cumulative impacts;
 - (2) the nature, significance and consequences of the impact and risk;

- (3) the extent and duration of the impact and risk;
- (4) the probability of the impact and risk occurring;
- (5) the degree to which the impact and risk can be reversed;
- (6) the degree to which the impact and risk may cause irreplaceable loss of resources; and
- (7) the degree to which the impact and risk can be mitigated;
- (xiii) where applicable, a summary of the findings and recommendations of any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final assessment report;
- (xiv) an environmental impact statement which contains
 - (1) a summary of the key findings of the environmental impact assessment;
 - (2) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and
 - (3) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;
- (xv) based on the assessment, and where applicable, recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation;
- (xvi) the final proposed alternatives which respond to the impact management measures,
- (xvii) avoidance, and mitigation measures identified through the assessment;
- (xviii) any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation
- (xix) a description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed;
- (xx) a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;
- (xxi) where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required and the date

on which the activity will be concluded and the post construction monitoring requirements finalised;

- (xxii) an undertaking under oath or affirmation by the EAP in relation to:
- (1) the correctness of the information provided in the reports;
 - (2) the inclusion of comments and inputs from stakeholders and I&APs;
 - (3) the inclusion of inputs and recommendations from the specialist reports where relevant; and
 - (4) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties;

3. DETAILS OF THE ENVIRONMENTAL IMPACT ASSESSMENT PRACTITIONER

This chapter is intended to provide details on the organisation and the Environmental Assessment Practitioners (EAPs) that undertook the Scoping and EIA.

Table 1: Environmental Consulting Company and Environmental Assessment Practitioner Details

EAP: Watercube Services (Pty) Ltd	Environmental Specialist: Lucas Radebe
35 Dave Herman Street	Tel: 063 505 4529
The Orchards	Fax: 086 608 2143
0182	E-mail: watercubeservices@gmail.com
Experience of the EAP Lucas Radebe is an environmental scientist and has been involved in environmental management for the past 7 years working on South African including EIAs and ISO 14001 auditing for a variety of activities. Her experience includes Basic Assessments, Environmental Impact Assessments, Environmental Management Plans, Environmental Auditing, Water Use Licence Applications and Stakeholder Engagement	

Other Specialist studies undertaken to support the EIA Report

- ❖ Biodiversity Assessment
- ❖ Geotechnical Impact Assessment
- ❖ Traffic Impact Study
- ❖ Heritage Assessment
- ❖ Visual Impact Assessment
- ❖ Engineering Service Study

The findings of specialists relative to the abovementioned issues have informed the proposed development and have been incorporated into the body of the report. The specialists' reports are appended as required.

4. LOCALITY PLAN INDICATING PROPOSED REGOROLGILE TOWNSHIP

The proposed development is located on the Remaining Extent of the Farm Tyne 250 JQ. The site is located approximately 38 km north-east from Brits. The co-ordinates of the site are S 25° 30' 7.2" and E 27° 59' 31.2".

21 digit Surveyor General code of each cadastral land parcel:

T	0	J	Q	0	0	0	0	0	0	0	0	0	2	5	0	0	0	0	0	0
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The proposed site is previously disturbed land within informal settlements which extends over an area of approximately 65 ha and is located on municipally owned property.

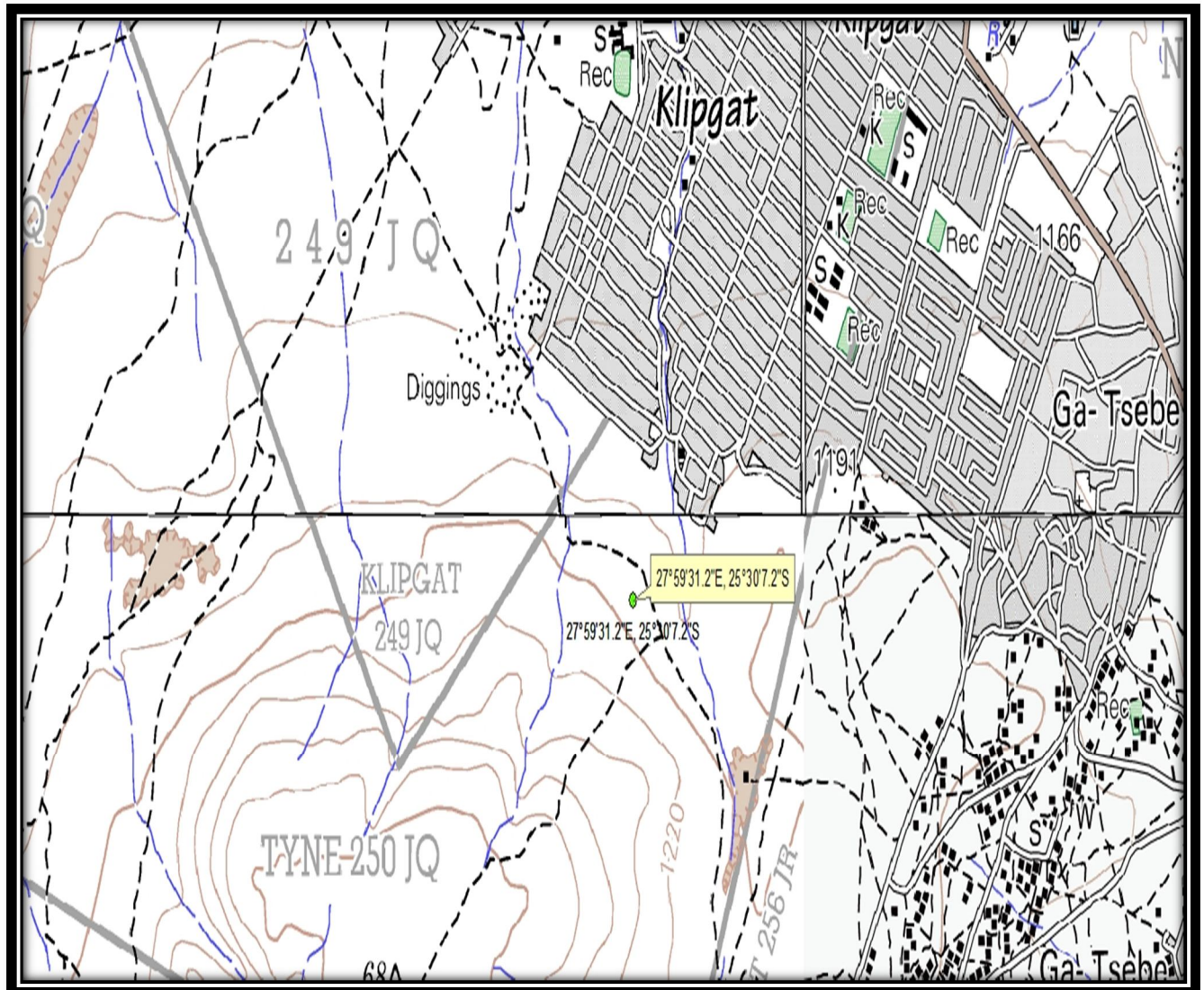


Figure 1: Local Map indicating surrounding environment



Figure 2: Locality Map indicating the surround activities



Figure 4: Eastern part of the proposed Klipgat Township

Adjacent developments



The area immediately surrounding the subject property has the following activities

- Klipgat Township

Description of the scope of the proposed activity

In terms of the EIA Regulations of 2014, the table below presents the list of activities that have been investigated and have to be authorised.

Table 2. Summary of the activities associated with the project which require environmental authorisation.

Government Notice.	Activity Number	Listed Activity	Project Activity
GNR 984 of 4 December 2014	15	The clearance of an area of 20 hectares or more of indigenous vegetation.	The formalisation and development of proposed Klipgat A Hillside Township with an area extent of 33.63 Hectares

Description of the associated structures and infrastructure related to the development

MLM is both the landowner of the proposed site and the proponent and applicant for environmental authorisation. The total area of the proposed site is approximately 65 Ha. The land is currently undeveloped and zoned as “undetermined” but earmarked for residential township establishment.

The proposed activity is the establishment of a low-cost housing development the construction of low-cost housing units as well as associated infrastructure, bulk services, and social and economic facilities. With regard to services, running water will be supplied, either to each stand or to RDP standards every 200 meters. Electrical demand should be calculated by an Electrical Engineer. The Madibeng Municipality is the electrical service provider. An application should be submitted for the bulk supply however a shortage of power is experienced currently.

The alternative is to apply at Eskom for power as calculated by Electrical Engineer.

The sewer reticulation system will be designed and installed according to the Madibeng Local Municipality requirements.

The proposed site is previously disturbed land which extends over an area of approximately 38.08 ha and is located on municipally owned property, and consists of the following:

Zoning	Erf Numbers	No. of Stands	Size of the Area (Ha)
Residential	1-148, 450-432, 434-467	470	23.05
Church	149, 433	2	0.32
Public Open Space	468-470	3	0.56
Streets			9.70
Total			33.63

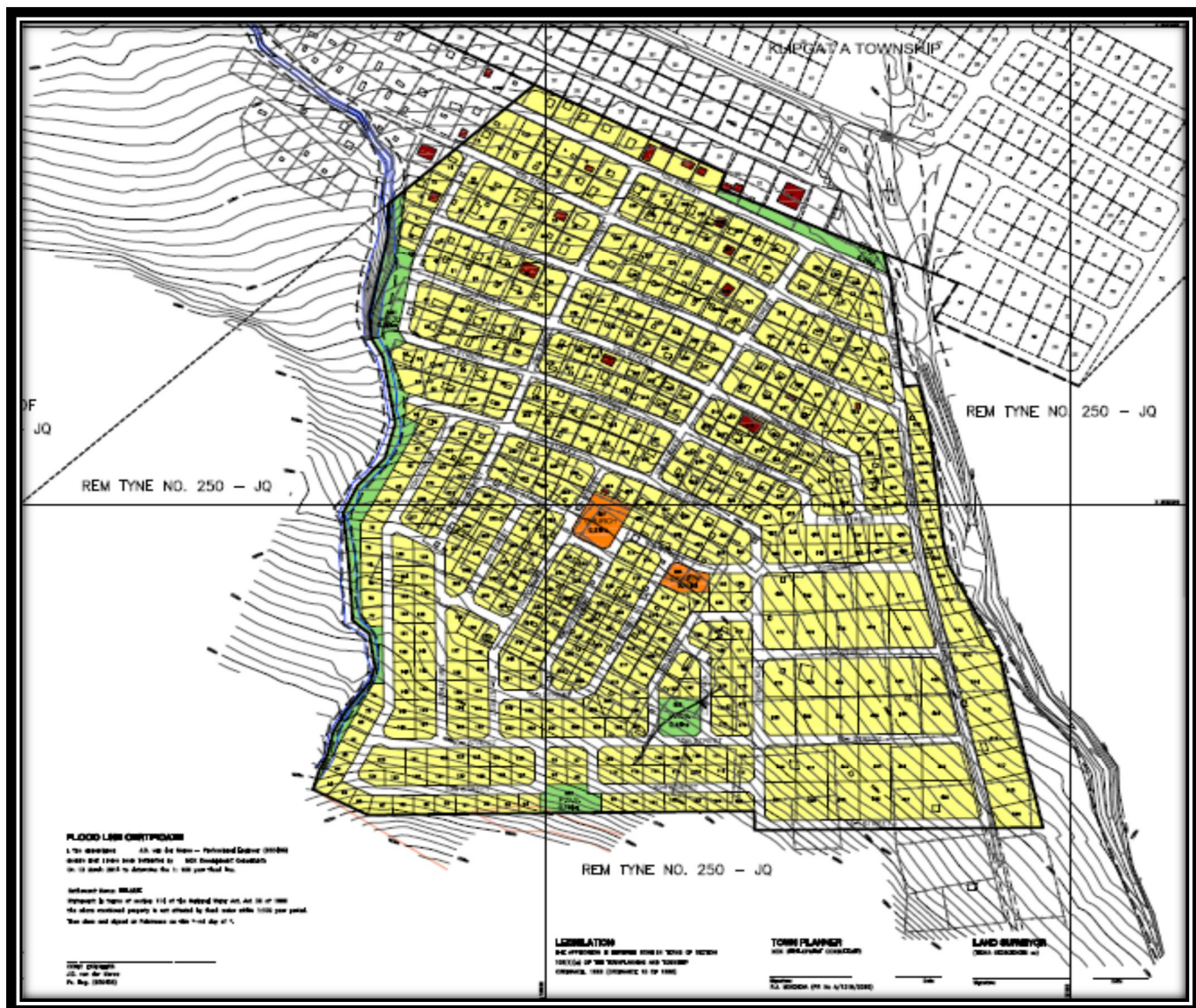


Figure 5: Layout Plan of Klipgat A Hillside Township development and formalisation Project

Roads

Main access to the site will be from road M21 connecting Ga-Rankuwa and Soshanguve. The secondary access is from the unmarked Street turning north from road M21 passing Nooitgedacht Dam. Road M21 falls under the jurisdiction of Road Agency and the unmarked street under the supervision of the Madibeng Municipality.

Storm water systems

The storm water is channelled on the internal road network and drained to the low points on the northern side into the two small drainage streams east and west of the site. Storm water outlets should mitigate the discharge to prevent any scouring.

Water Supply

The village domestic water is supplied from the two reservoirs approximately 1.2km from the site on the mountain just south of Hillside. The Bulk supply line will be constructed in the near future. Availability of water from the reservoirs could not be confirmed. An application should be submitted to the Local Municipality for supply from the reservoirs or groundwater exploration for the proposed development will be required.

Sewer Drainage Network

The surrounding villages/ settlements use VIP toilets, which is not accepted by Department of Water and Sanitation. The new outfall sewer pipe line to service the area is in construction phase currently. The houses will be equipped by water born sewerage system in future. The sewer reticulation system will be designed and installed according to the Local Municipality requirements.

Electrical Supply

Electrical demand should be calculated by an Electrical Engineer. The Madibeng Municipality is the electrical service provider. An application should be submitted for the bulk supply however a shortage of power is experienced currently.

The alternative is to apply at Eskom for power as calculated by Electrical Engineer.

5. DESCRIPTION OF POLICY AND LEGISLATIVE CONTEXT WITHIN WHICH THE DEVELOPMENT IS LOCATED

The Constitution of South Africa (Act 108 of 1996)

The legal reference source for environmental law in South Africa is found in the Constitution of the Republic of South Africa, Act 108 of 1996. All environmental aspects should be interpreted within the context of the Constitution. The Constitution has enhanced the status of the environment by virtue of the fact that environmental rights have been established (Section 24) and because other rights created in the Bill of Rights may impact on environmental management. An objective of local government is to provide a safe and healthy environment (Section 152) and public administration must be accountable, transparent and encourage participation (Section 195(1) (e) to (g)).

Implications for the proposed development:

- ❖ Obligation to ensure that proposed activity will not result in pollution and/or ecological degradation;
- ❖ Obligation to ensure that where possible conservation is promoted; and
- ❖ Obligation to ensure that the proposed activity is ecologically sustainable, while demonstrating economic and social development.

The National Environmental Management Act (Act 107 of 1998)

The National Environmental Management Act (Act 107 of 1998) commonly known as "NEMA" is South Africa's overarching framework for environmental legislation. The object of NEMA is to provide for operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance, and procedures for co-ordinating environmental functions exercised by organs of state.

It sets out a number of principles that aim to give effect to the environmental policy of South Africa. These principles are designed to, amongst others, serve as a general framework for environmental planning, as guidelines by reference to which organs of state must exercise their functions and guide other law concerned with the protection or management of the environment.

The principles include a number of internationally recognised environmental law norms and some principles specific to South Africa, i.e. the:

- ❖ Preventive principle;

- ❖ Precautionary principle;
- ❖ Polluter pays principle; and
- ❖ Equitable access for the previously disadvantaged to ensure human wellbeing.

Chapter 5 of NEMA is designed to promote integrated environmental management. Environmental management must place people and their needs at the forefront of its concerns, and serve their physical, psychological, developmental, cultural and social interests equitably. Development must be socially, environmentally and economically sustainable. Sustainable development therefore requires the consideration of all relevant factors including:

The avoidance, or minimisation and remediation, of disturbance of ecosystems and loss of biological diversity;

The avoidance, or minimisation and remediation, of pollution and degradation of the environment;

The avoidance, or minimisation and remediation, of disturbance of landscapes and sites that constitute the nation's cultural heritage;

That waste is avoided, or, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner;

That the use and exploitation of non-renewable natural resources should be undertaken responsibly and equitably;

That the development, use and exploitation of renewable resources and the ecosystem of which they are part should not exceed the level beyond which their integrity is jeopardised;

The application of a risk-averse and cautious approach; and

That negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.

Regulations promulgated under NEMA include the Environmental Impact Assessment regulations published under Government Notice No. 983 for those activities that require environmental authorisation by means of a Basic Assessment Process or an Environmental Impact Assessment (EIA) Process.

Implications for the proposed development

- ❖ The principles espoused in NEMA serve as guidelines for relevant decision makers in ensuring the protection of the environment. Therefore, the proposed development must be consistent with these principles;
- ❖ Where this is not possible, deviation from these principles would have to be very strongly motivated;
- ❖ The activity may not take place without the required authorisation; and
- ❖ Both the Scoping and EIA processes have been facilitated with the submission of both a Scoping Report and an Environmental Impact Report.

National Environmental Management: Waste Act, 2008 (Act No 59 of 2008)

One of the main objectives of the Act is to provide for measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development through providing for:

- ❖ National norms and standards for regulating the management of waste by all spheres of government;
- ❖ Specific waste management measures;
- ❖ The licensing and control of waste management activities;
- ❖ The remediation of contaminated land; to provide for the national waste information system; and
- ❖ Compliance and enforcement mechanisms.

In terms of the NEMWA, certain waste management activities must be licensed and in terms of Section 44 of the Act, the licensing procedure must be integrated with an environmental impact assessment process in accordance with the EIA Regulations promulgated in terms of the NEMA. Government Notice 921, which was published in Government Gazette No. 37083, on 29 November 2013 and implemented with immediate effect, lists the waste management activities that require licensing. A distinction is made between Category A waste management activities, which require a Basic Assessment, and Category B activities, which require a full EIA (Scoping followed by Impact Assessment).

The National Environmental Management: Biodiversity Act (Act 10 of 2004)

The Act provides for the management and conservation of South Africa's biodiversity within the framework of the NEMA. This Act allows for the protection of species and ecosystems that warrant national protection, the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources and the establishment and functions of the South African National Biodiversity Institute. Key elements of the Act are:

- ❖ The identification, protection and management of species of high conservation value;
- ❖ The identification, protection and management of ecosystems and areas of high biodiversity value;
- ❖ Alien invasive species control of which the management responsibility is directed to the landowner; and
- ❖ Section 53 of the Act identifies that any process or activity that is regarded as a threatening process, requires environmental authorization via a full Environmental Impact Assessment (Government Notice No. 387).

Implications for the current development

- ❖ Areas of high biodiversity need to be protected;
- ❖ The Department of Rural, Environment and Agricultural Development would have to be contacted in order to obtain a permit to remove any protected indigenous plants.

The National Water Act, 1998 (Act No.36 of 1998)

The National Water Act (The Act) provides for the management of South Africa's water resources. The purpose of the Act is to ensure that the Republic's water resources are protected, used, developed, conserved and controlled.

- ❖ Any activity that triggers section 21 of the National Water Act requires an authorisation from the Department of Water and Sanitation
- ❖ Water Supply - Under the National Water Act, a developer is required to obtain the necessary permits for water usage and the disposal of wastewater from the authority responsible for the administration of the Act, namely the Department of Water and Sanitation (DWS).
- ❖ Any private well or borehole sunk for the abstraction of groundwater has to be reported and registered with the DWS.

- ❖ Wastewater - The National Water Act is the principal piece of South African legislation governing wastewater management.

Implications for the proposed development:

- ❖ Any proposed water uses must be specified and registered and where necessary licenses applied for;
- ❖ Any modifications to drainage lines must be investigated in terms of water use requirements;
- ❖ Reasonable measures must be taken to prevent pollution of water resources;
- ❖ Where pollution of a water resource occurs measures to be taken to remedy the situation;
- ❖ The developers must take all reasonable measures to minimise the impacts of the incident, undertake clean-up procedures, remedy the effects of the incident and take measures as directed by the catchment agency; and
- ❖ Waste created during construction needs to be controlled adequately to negate the impacts on ground and surface water.

The National Heritage Resources Act, 1999 (Act 25 of 1999)

The Act aims to promote the good management of the national estate of South Africa.

The national estate can include:

- ❖ Places, buildings, structures and equipment of cultural significance;
- ❖ Places to which oral traditions are attached or that are associated with living heritage;
- ❖ Historical settlements and townscapes;
- ❖ Geological sites of scientific or cultural importance;
- ❖ Archaeological and paleontological sites;

In terms of Section 38 of the Act, the South African Heritage Resources Agency (SAHRA) must be notified during the early planning phases of a project for any development that includes the following activities:

- ❖ the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- ❖ any development or other activity which will change the character of a site exceeding 5 000 m² in extent: involving three or more existing erven or subdivisions thereof, involving three or more erven or divisions thereof which have been consolidated within the past five years, the costs of which will

exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority

Implications for the proposed development:

- ❖ No person may alter or demolish any structure or part of a structure, which is older than 60 years or disturb any archaeological or paleontological site or grave older than 60 years without a permit issued by the relevant provincial heritage resources authority. The age of the stable building on site needs to be determined;
- ❖ SAHRA must be informed of the proposed development and provided an opportunity to comment. This may result in the need for a phase 1 heritage impact assessment.

Madibeng Local Municipality EMF

The EMF delineates geographic areas in terms of environmental attributes, such as water resources, cultural and heritage resources, agricultural potential and economic attributes, assesses the current status quo against the vision or desired state for the study area and identifies environmental management or development constraint zones (DCZ) to guide land use planning and development.

The EMF will be used to proactively plan development in a sustainable manner within the Municipality and to guide decision-making by authorities on development applications, ultimately ensuring continued progress towards sustainability.

Informal Settlements, as the dispersed nature of these settlements hinders formalization and service delivery and promotes poorer living conditions and environmental degradation.

Low Cost Housing Developments. The need for low cost housing is driven by the influx of people attracted to working for the mining sector. This populace ends up in informal settlements because of the inappropriate location of municipal land for development.

Madibeng Local Municipality SDF

The main aim of the SDF is the provision of guidance with regard to physical development of Madibeng Local Municipality so as to improve the manner in which activities are arranged in the physical space. By enhancing the ways in which activities are situated in Madibeng Local Municipality as well as interrelation of several activities with others will eventually improve the efficient and effective functioning of Madibeng

Local Municipality. This strategic arrangement of activities will also improve the municipality capability to contribute to economic expansion, social well-being and environmental sustainability. The key objective of Madibeng SDF is the attainment of an integrated and coordinated municipal area wherein all the sectors have the ability to contribute to an effective, well-organized, justifiable, liveable as well as sustainable urban environment.

The SDF has an influence on both private and public capital investments in the sense that it needs to fulfil the following:

- ❖ The SDF ought to give direction to private investors with regard to where certain developments will be allowed as well as where they won't be allowed;
- ❖ The SDF should make it a point that it creates a conducive environment for the implementation of municipality's Integrated Development Plan; and

EIA Guidelines published under NEMA

The following guidelines have been considered in the production of this EIAR Report:

DEAT (2002) Scoping, Integrated Environmental Management, Information Series 2, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

DEAT (2005) Guideline 3: General Guide to the Environmental Impact Assessment Regulations, 2005, Integrated Environmental Management Guideline Series, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

DEAT (2005) Guideline 4: Public Participation in support of the EIA Regulations, 2005. Integrated Environmental Management Guideline Series. Department of Environmental Affairs and Tourism (DEAT), Pretoria.

DEAT (2006) Guideline 5: Assessment of Alternatives and Impacts in support of the Environmental Impact Assessment Regulations, 2006. Integrated Environmental Management Guideline Series, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

Environment Conservation Act 73 of 1989

The objectives of the Environment Conservation Act 73 of 1989 ("ECA") are to provide for the effective protection and controlled utilization of the environment. Following the enactment of NEMA, a number of the powers of the Act have either been repealed or assigned to the provinces. These include the EIA Regulations for activities that were regarded as detrimental to the environment and were published under Government Notice Regulation 1182 of 05 September 1997, as amended. New EIA Regulations have

been promulgated under Section 24(5) of NEMA and are published under Government Notices No. 982, 983, 984 and 985.

Development Facilitation Act (DFA)

The Development Facilitation Act (Act 67 of 1995) has 3 main objectives. Firstly, to provide a coherent policy framework for land development, land registration and planning; secondly to speed up and facilitate the approval of land development applications; and thirdly to provide for the overhaul of existing planning and land development frameworks. The DFA, thus, introduces extraordinary measures to facilitate and speed up the implementation of reconstruction and development programmes and projects. The Act further includes general principles governing land development, including nationally uniform procedures for the subdivision and development of land in urban and rural areas so as to promote the speedy provision and development of land for residential, small-scale farming or other needs and uses.

6. NEED AND DESIRABILITY OF PROPOSED ACTIVITY AND MOTIVATION FOR PREFERRED DEVELOPMENT

According to the Guidelines on Need and Desirability, when "need and desirability" must be considered as part of an EIA process, the content of the IDPs, SDFs, EMFs and other relevant plans, frameworks and strategies must be taken into account when considering the merits of each application. Whether a proposed activity will be in line with or deviation from the plan, framework or strategy per se is not the issue, but rather the ecological, social and economic impacts that will result because of the alignment or deviation. As such, the EIA must specifically provide information on these impacts in order to be able to consider the merits of the specific application.

The National Development Plan (NDP) is a plan, which seeks to reduce and ultimately eliminate poverty and inequality within the country by the year 2030, through the unification and collaborative efforts of all South Africans. The plan aims to develop the capabilities of individuals and of the country and to create opportunities for all citizens. In order to achieve the aforementioned objective, the NDP is divided into a number of chapters, each addressing a specific sector that relates to the objective of the NDP.

In 2004, the Department of Housing declared the desire to eradicate informal settlements in South Africa by 2014 following the unprecedented housing backlog, proliferation of informal settlements, social exclusion and the inability of municipalities to provide basic infrastructure to the urban poor households.

Housing and service delivery is a key challenge facing the Madibeng Local Municipality (MLM). According to Madibeng Integrated Development Plan, 2015/2016 different communities in various wards set out their needs during the public participation process. The community need for different wards in Klipgat area include the following

- Land and Housing;
- Electricity;
- Water and sanitation;
- Roads and storm water;
- Social services; and
- Local Economic Development.

In terms of the Municipal Systems Act 32 of 2000, all municipalities (i.e. metropolitan, district and local) have to undertake an Integrated Development Plan (IDP) process to produce IDPs. As the IDP is a legislative requirement it has a legal status and it supersedes all other plans that guide development at local government level. The provision of integrated and sustainable human settlements is listed as one of the strategic objectives of the Municipality's IDP, which means that housing must be accompanied by the provision of other services and amenities required to improve the socio-economic conditions of the residents of that area (i.e. access to community facilities such as educational, entertainment, cultural, health, sports and welfare services).

The area of Klipgat was identified in the MLM IDP as a restructuring zone for social housing and Klipgat A Hillside was identified as a precinct where residential expansion needs to take place

Potential Alternatives

The applicant requests exemption from having to assess alternatives, because Madibeng Local Municipality (MLM) in line with the SDF has already set aside and subdivided the site for low-cost housing. MLM, in line with the SDF, has identified

SDF ought to provide guidance in terms of spatial location of Madibeng capital interventions in ensuring that the maximum benefits are attained from investment in place.

The Madibeng Local Municipality can be divided into four functional quadrants. Zone 2: the north-eastern section which comprises the majority of the informal settlements, marginalised townships and rural villages and proposed township falls within Zone 2. Therefore, the SDF makes provision for the development and formalisation of the human settlement.

Remaining Extent of the Farm Tyne 250 JQ as an area that can be used for a high-density settlement. The low cost housing development would not only provide much needed housing, social services and community facilities, but also enable the area to be serviced more economically.

This low-cost housing development will, in terms of the MLM Implementation Plan redress the number of informal settlements and address the housing shortage within the MLM area; it will accommodate previously disadvantaged individuals who cannot afford houses; and it will create employment opportunities in both the construction and operational phases.

According to Madibeng EMF there four constraint zones, according to which the study area has been classified, are as follows:

- ❖ Very High Development Constraint Zone (VH-DCZ);
- ❖ High Development Constraint Zone (H-DCZ);
- ❖ Medium Development Constraint Zone (M-DCZ); and
- ❖ Low Development Constraint Zone (L-DCZ).

Very High Development Constraint Zone (VH-DCZ and H-DCZ)

This zone constitutes the largest constraint zone, as it dominates the northern half and the southern extents of the MLM along the Merensky Reef. Development constraints within this zone include: Endangered vegetation units; Conservancies; and Local and generally protected historical resources to ensure a continuity of cultural heritage.

Medium Development Constraint Zone (M-DCZ)

This zone lies mainly within the central sections of the MLM and is within wards, 3, 4, 5, 8, 9, 11, 12, 14 and 24. Development constraints within this zone include: Vulnerable vegetation units; Ecological Support Areas; Protected Areas, Type 3: Game farms and Reserves; and Historical sites that are of an importance rating (level Generally Protected B) that would not hinder development.

Low Development Constraint Zone (L-DCZ)

These areas mostly occur around rural settlements where subsistence farming could potentially destroy the future livelihood of the people should proper training not take place.

The proposed development falls within the Medium Development Constraint Zone and therefore, there is not necessary to consider alternative area.

No-go Alternative

The No-go Alternative would mean that the proposed low-cost housing development would not be constructed at the proposed site and the land would remain vacant. Vacant land may result in more informal settlement development; illegal dumping; vegetation clearing for firewood; and alien plant invasion. In the absence of development, the City Council neither stand to gain additional revenue from rates and taxes, nor bulk services contributions and upgrades / improvements to the local and strategic road network of the Municipality.

7. PUBLIC PARTICIPATION PROCESS

The EIA Regulations specify that a public participation process must be conducted as an integral part of the EIA. The public participation followed the process stipulated in Section 41 of the 2014 EIA Regulations. This chapter outlines the public participation process followed.

Notification of Interested and Affected Parties (I&AP's)

Section 41 of the EIA Regulations outlines the requirements for the notification of all potential I&AP's. These requirements typically include the following:

❖ Giving notification to:

The landowners and occupiers of the project site and those within 100m of the project site and alternative sites, or those directly influenced by the activity under consideration;

The municipality that has jurisdiction over the area;

The municipal councillors of the affected wards; and

Any organ of state having jurisdiction in respect of any aspect of the activity.

❖ Placing an advertisement in a local and a provincial newspaper; and

❖ Fixing a notice board at a conspicuous place on all alternative sites.

❖ Notification of Landowners, Authorities, and Organs of State

❖ Surrounding landowners and occupiers of land within 100 metres of the proposed project site were notified by hand delivered letters of the applicant's intention to submit an application to the competent authority.

Newspaper Advertisement

A newspaper advertisement detailing information about the project and the EIA process that has since been finalised, as well as calling for the registration of I&AP's, was placed on 17 October 2016 in the Madibeng Times, the local newspaper for the surrounding area. The advertisement provided I&APs 30 days to register and to submit their comments in writing to Watercube Services. The closing date for registration was therefore 17 November 2016.

Notice Board



Figure 6: Site notice

An A3 size notice board detailing information about the project and the EIA process was erected on site at a recognised public area on 14 October 2016.

The purpose of this is to notify the public of the project and to invite the public to register as stakeholders and inform them of the Public Participation Process. Five (5) site notices at strategic, highly visible locations along the proposed site for a period of one month were placed.

Distribution of the Background Information Document (BID) in December to identified Interested and Affected Parties (IAPs), stakeholders and neighbouring residents.

The competent authority, which is the READ, is required to provide an environmental authorisation (whether positive or negative) for the project. The READ will be consulted on submission of an application form and a draft EIR report, and will be engaged throughout the project process.

a. Background Information Document

At commencement of the project a Background Information Document (BID) was prepared and sent to I&APs that provided a summary of the details of the proposed project as well as the EIA process that was to follow.

b. Public Meeting

As the proposed activity was limited in extent and very little interest was received from the public, a public meeting was not deemed necessary. Instead, the I&APs were consulted individually.

8. DESCRIPTION OF THE RECEIVING ENVIRONMENT

Introduction

This chapter provides a description of the receiving environment within the study area. This section describes the biophysical and socio-economic environment that may be affected and the baseline conditions which are likely to be affected by the proposed activity. This description is informed by various specialist studies undertaken for this assessment and also includes information obtained from various literature sources and is described at a level deemed appropriate for the EIA phase. A summary of the affected environment is provided and more detailed studies focused on significant environmental aspects of the development have also been provided. The three components to the environment are recognised as:

- ❖ Physical Environment
- ❖ Biological Environment
- ❖ Socio-Economic Environment.

Only those elements of the environment that have a direct bearing on the impact assessment process of the project are discussed. The severity of the potential impacts is largely determined by the state of the receiving environment. For example, the construction of a housing development in a pristine wetland habitat would have far more significant ecological impacts than the construction of a housing development in a residential area.

Physical Environment

Climate

The study area is located in the summer rain fall zone of the Republic of South Africa. The mean annual precipitation of the study area is approximately 670mm-700mm. The maximum temperature seldom rises above 32 degrees Celsius and the minimum seldom reach -5 degree Celsius. The mean daily temperatures averaging from 16 to 30 °C

Topography

The topography can be characterized as moderately mountainous with the average slope approximately 9.2% north-north-east.

Geology

According to the Geological Map of South Africa, 2528 PRETORIA, 1985, Scale 1:250 000 the site is underlain by Granophyre, Pseudogranophyre, of the of the Rashoop Granophyre Suite of the Bushveld Complex.



Figure 7: Geological map of the propose site

Soils

The area is covered by two main soil types:

- ❖ Dry, Reddish brown, grey, fine grained, silty sand with roots.
- ❖ Dry reddish brown medium grained sandy gravel -ferruginized

Surface Hydrology

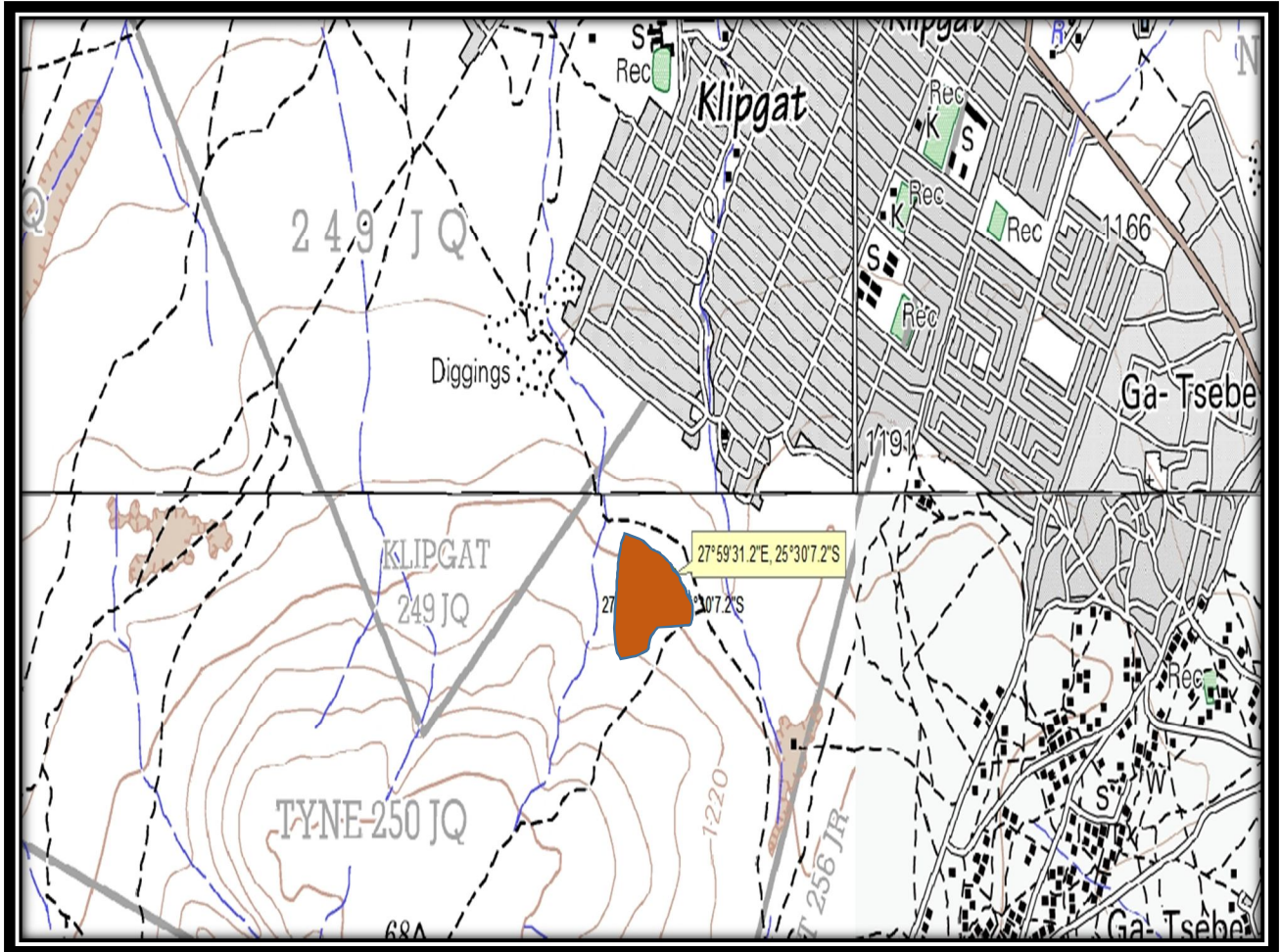


Figure 8: Site plan indicating the streams

The study area is drained entirely by means of surface flow on the road network with channels to the northern side of the development into the small stream on the eastern side of the site.

The study area falls into the Crocodile River catchment. No 1: 100 year flood line is applicable to the area to be developed. The flood line is shown on the layout drawing. The storm water management foresee little to no limitations.

Biological Environment

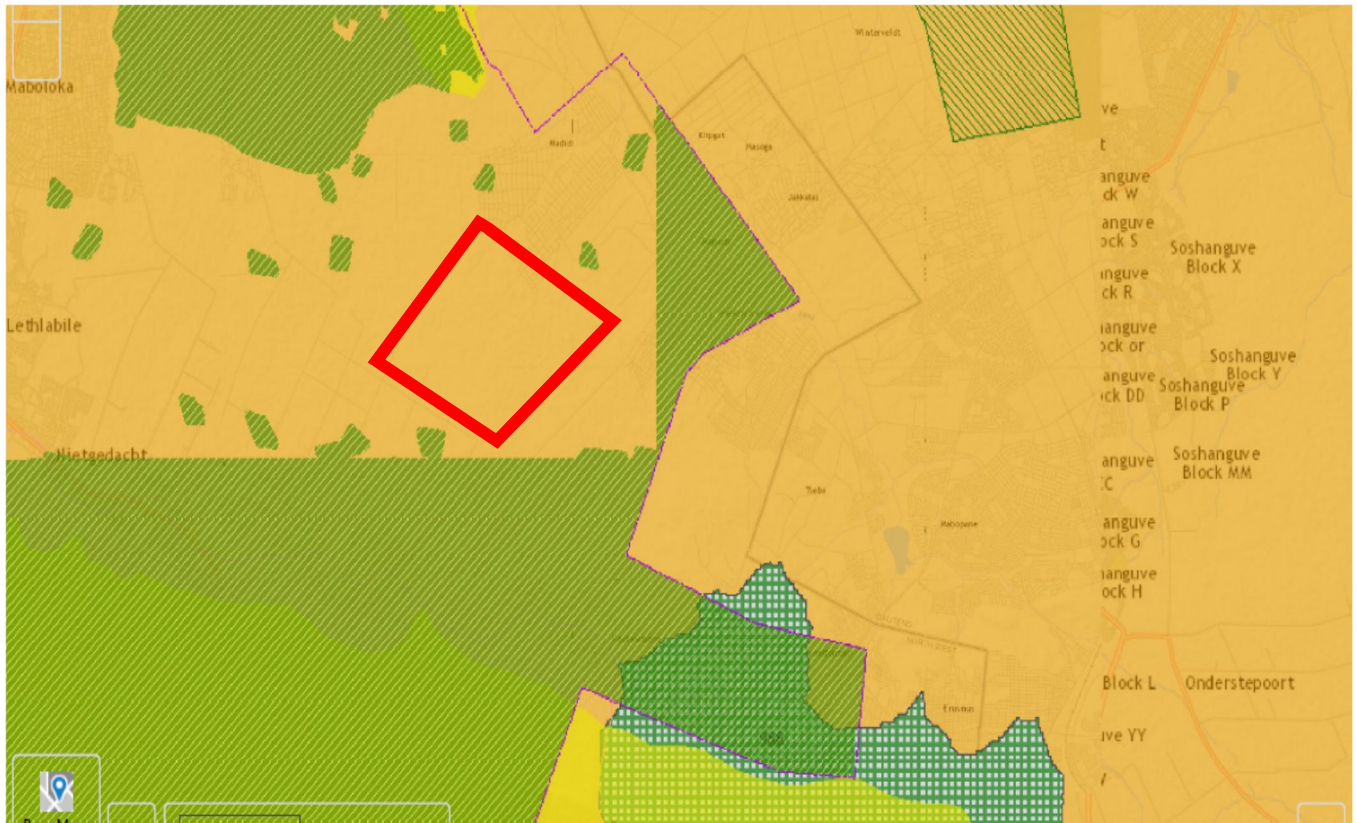


Figure 9: Vegetation map of the study area

Faunal populations are dependent on the flora that supports them therefore assumptions regarding the presence of fauna can be made based on the flora present. Habitats within the study area are dominated by grassland biome vegetation type. The site falls in Savannah, which has an ecosystem status of vulnerable. This habitat will then further disturbed / degraded during the construction of the township development and impact of the ecosystem within Klipgat A Hillside will be permanent.

The study areas fall under the Savannah vegetation which is vulnerable and conserved biodiversity area. According to Mucina and Rutherford, (2006), only about 1% of the vegetation type is already transformed.

No Red Data plant species were recorded in this study. This could be attributed to the destruction and fragmenting of natural habitats and in some alternative routes, disturbance from human settlements. Currently this vegetation unit is considered to be Least threatened with a conservation target of 24%.

Socio-Economic Environment

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. (Madibeng Local Municipality SDF 2015).

It is known for its diversified economy: agriculture, mining and tourism are the dominant sectors. Level of education is low with only 27.60% of the population having higher education and 7.8 having no education at all. MLM is further characterized by low level of income, with 50.60% of the population earning below R800.00 per month. Unemployment is high at 30.40% of which youth unemployment (15-34) accounts for 38.2 (Madibeng Local Municipality IDP, 2015).

Built Environment

The built environment surrounding the proposed development area ranges from high density low-income housing and informal rural type settlements to large mining and agriculture developments. Developments located adjacent to the proposed settlement are informal settlement, with limited infrastructure that only meets RDP Standards. Social facilities within the area are lacking, with the nearest school being located some few kilometres from the site.

The roles of settlements are determined by the functionality and polycentricism of activities in the area. There are three hierarchies of settlements in Madibeng. These are first order centres, second order service centres and third order settlements. 1st order towns are normally the centre of the municipality characterised by the CBD. 2nd order centres are centres associated with residential areas and certain functionality or service. Third order centres are dominated by residential the core centre. These hierarchies of settlements apply as follows in Madibeng.

Table 3: Settlement order centres

Hierarchy order centre	Place name
First order	Brits CBD
	Brits Suburb
Second order	Hebron
	Lethabile
	Mmakau
Third order	Ifafi
	Schoemansville
	Mothutlung
	Peaconwood

Service Infrastructure

No infrastructure is currently in place on site; however electricity, sewer and water will be connected onto existing bulk infrastructure currently servicing the surrounding areas.

Access Roads

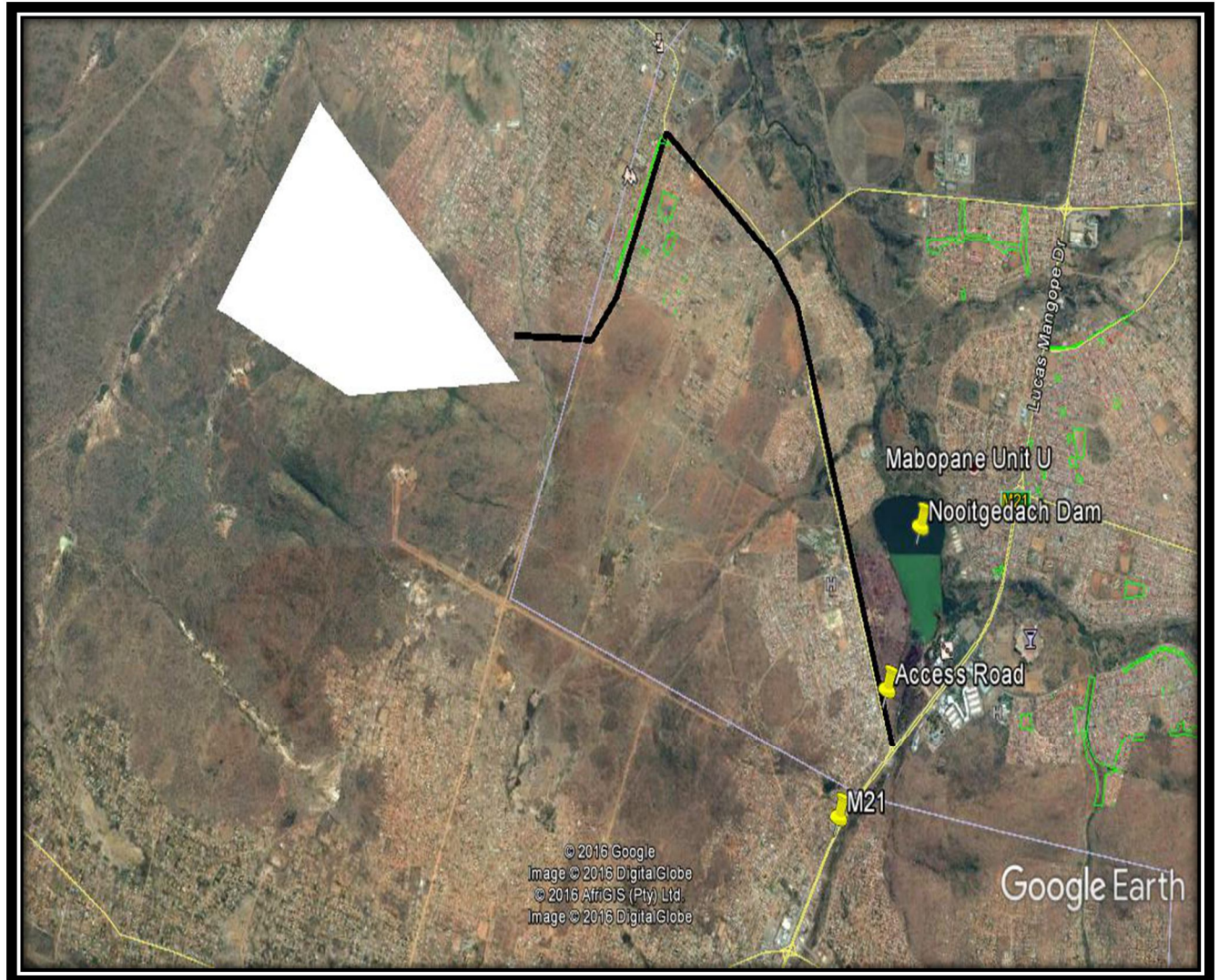


Figure 10: Picture indicating the access road to the study area

Main access to the site will be from road M21 connecting Ga-Rankuwa and Soshanguve. The secondary access is from the unmarked Street turning north from road M21 passing Nooitgedacht Dam. Road M21 falls under the jurisdiction of Road Agency and the unmarked street under the supervision of the Madibeng Municipality.

Bulk Water supply

The village domestic water is supplied from the two reservoirs approximately 1.2km from the site on the mountain just south of Hillside. The Bulk supply line will be constructed in the near future. Availability of water from the reservoirs could not be confirmed. An application should be submitted to the Local Municipality for supply from the reservoirs or **groundwater exploration** for the proposed development will be required.

No official tested borehole on the site could be obtained from the DWAF data base.

Bulk Electricity Supply

The MLM has confirmed that electricity supply can be made available to the proposed development, and it is proposed that ESKOM will provide electricity.

Substations may be required but the location thereof has not yet been determined, and any environmental authorisations required fall outside the scope of this EIA.

Solid Waste Management

Solid waste management services are to be provided by the MLM, in accordance with the national Domestic Waste Collection Standards. This will include regular weekly removal of domestic refuse to the approved Landfill site. The Madibeng Local Municipality is providing the solid waste removal services in the surrounding settlements.

9. METHODOLOGY IN ASSESSING IMPACTS

Introduction

This chapter outlines the generic methodology that will be followed when evaluating impacts. This generic methodology will be used when assessing the significance of the impacts related to the key issues and impacts raised in Section 8 Environmental Issues and Impacts.

Methodology

Significance of Impact

This should be described as follows:

High: Where it could have a no-go implication for the project irrespective of any possible mitigation.

Medium: Where the impact could have a moderate influence on the environment, which would require modification of the project design or alternative mitigation.

Low: Where the impact would have little influence on the environment and would not require the project design to be significantly accommodated.

None: Where the impact would have no influence on the environment and would not require the project design to be accommodated at all.

The significance of the impact should be determined through the following criteria:

Nature of Impact

This includes a brief description of how the proposed activity will impact on the environment. This should be stated as:

- Positive (a benefit),
- Negative (a cost) or
- Neutral.

Extent

This refers to the geographic area on which the activity will have an influence and can include the following extents:

- ❖ Project site – the immediate location of the activity;
- ❖ Study area – the proposed area and its immediate environs within a 5 km radius of the activity;

- ❖ Catchment – area of land from which rainfall drains into a river;
- ❖ Local – Local Municipality;
- ❖ District;
- ❖ Regional – Province;
- ❖ National – Country; or
- ❖ International

Duration

This refers to the expected timeframe of an impact and can be expressed as:

- ❖ Short term (0 – 5 years);
- ❖ Medium (5 – 15 years);
- ❖ Long term (15 – 40 years, but where the impact ceases after operation); or
- ❖ Permanent (over 40 years and resulting in a permanent and lasting change that will always be there).

Likelihood

This considers the likelihood of the impact occurring and should be described as:

- ❖ Unlikely (where the impact is unlikely to occur);
- ❖ Likely (where there is a good probability, < 50 % chance that the impact will occur);
- ❖ Highly likely (where it is most likely, 50-90 % chance, that the impact will occur);
or
- ❖ Definite (where the impact will occur, > 90 % chance of occurring, regardless of any prevention measures).

Severity Scale

The severity is used to evaluate how severe negative impacts would be on the environment, and is described as follows:

- ❖ Very high (an irreversible and permanent change that cannot be mitigated);
- ❖ High (long term impacts that could be mitigated, however this mitigation would be difficult, expensive or time consuming);
- ❖ Medium (medium term impacts that could be mitigated);
- ❖ Low (short term impacts with mitigation being very easy, cheap, less time consuming or not necessary); or
- ❖ No effect (no impact by the proposed development).

Beneficial Scale

The beneficial scale is used to evaluate how beneficial positive impacts would be on the environment, and is described as follows:

- ❖ Very High (a permanent and very substantial benefit with no real alternative to achieving this benefit);
- ❖ High (a long term impact with substantial benefit, and alternative ways of achieving this benefit being difficult, expensive or time consuming);
- ❖ Medium (a medium term impact of benefit with other ways of achieving this benefit being difficult, expensive and time consuming);
- ❖ Low (a short term impact and negligible benefit with other ways of optimising the benefits being easier, cheaper and quicker); or
- ❖ No effect (no impact by the proposed development).

10. DEGREE OF CONFIDENCE

It is also necessary to indicate the degree of confidence with which one has predicted the significance of an impact, based on the availability of information and specialist knowledge. For this reason, a 'degree of confidence' scale has been provided to enable the reader to determine the certainty of the assessment of significance:

- ❖ High - More than 90% sure of a particular fact.
- ❖ Medium - Over 70% sure of a particular fact, or of the likelihood of that impact occurring.
- ❖ Low - Over 40% sure of a particular fact or of the likelihood of an impact occurring.
- ❖ Unsure - Less than 40% sure of a particular fact or of the likelihood of an impact occurring.

11. OTHER ASPECTS

Other aspects that should be taken into consideration are:

- ❖ Impacts should be described both before and after the proposed mitigation and management measures have been implemented;
- ❖ All impacts should be evaluated for the full life cycle of the proposed development including construction and operational phases;
- ❖ The impact evaluation should take into account the cumulative effects of other activities which have occurred or are in the process of occurring within the study area; and

- ❖ Legal requirements (a list of the specific legal and permit requirements that could be relevant to the proposed project should be identified).

12. MITIGATION AND MONITORING

Where negative impacts are identified, mitigation measures (ways of reducing impacts) should be set and where positive impacts are identified, ways of enhancing these impacts should also be mentioned. Where no mitigation is feasible, this should be stated and the reasons given. Quantifiable standards against which the effectiveness of the mitigation can be measured should be set. This may include input into monitoring and management programmes.

13. ISSUES AND IMPACT ASSESSMENT

This chapter provides an assessment of the impacts (including cumulative) associated with each issue and further includes mitigation measures to be implemented to reduce the significance of negative impacts.

Issue, Soil Loss and Erosion

Issue

During construction, the clearing and removal of vegetation, the digging of structure foundations, and earthworks may expose soils to wind and rain and could result in localised erosion. Furthermore, soils will be stockpiled during construction and could become vulnerable to erosion. The channelling of storm water may lead to the formation of gullies. The engineering report identified steep slopes along the streams, varying from a 3% to 8% gradient. These slopes are to be regarded as areas sensitive to erosion.

Table 4. Impacts surrounding soil loss and erosion

ISSUE:	SOIL LOSS AND EROSION	
Project Phase	Construction and Operation	
Impact	Erosion	Siltation of Drainage Channels
Probability	Likely	Likely
Degree to which impact cannot be reversed	Low	Medium
Degree to which Impact may cause irreplaceable loss of resources	Low	High
Confidence level	High	Medium
Significance Pre Mitigation	Medium (-ve)	Medium (-ve)
Significance Post Mitigation	Low (-ve)	

Degree of Mitigation		
Nature	Negative (direct)	Negative (direct and indirect)
Extent	Site	Study area
Duration	Short Term	Medium Term

Recommended Mitigation

Construction

- ❖ Removal of vegetation to take place only within demarcated construction site. Non-essential removal of vegetation to be avoided;
- ❖ No work is to be conducted within 30 metres of all drainage lines;
- ❖ Formal runoff prevention to be implemented on steep slopes. These could be in the form of beams, netting, barriers constructed out of topsoil or flatter road surfaces; and
- ❖ No development on slopes with a gradient > 16%

Operation

- ❖ Surfaced roads to be maintained and
- ❖ Velocity of runoff on roads and drains to be kept to a minimum. Flatter road surfaces and energy dissipaters could achieve this.

ISSUE, GROUND AND SURFACE WATER QUALITY

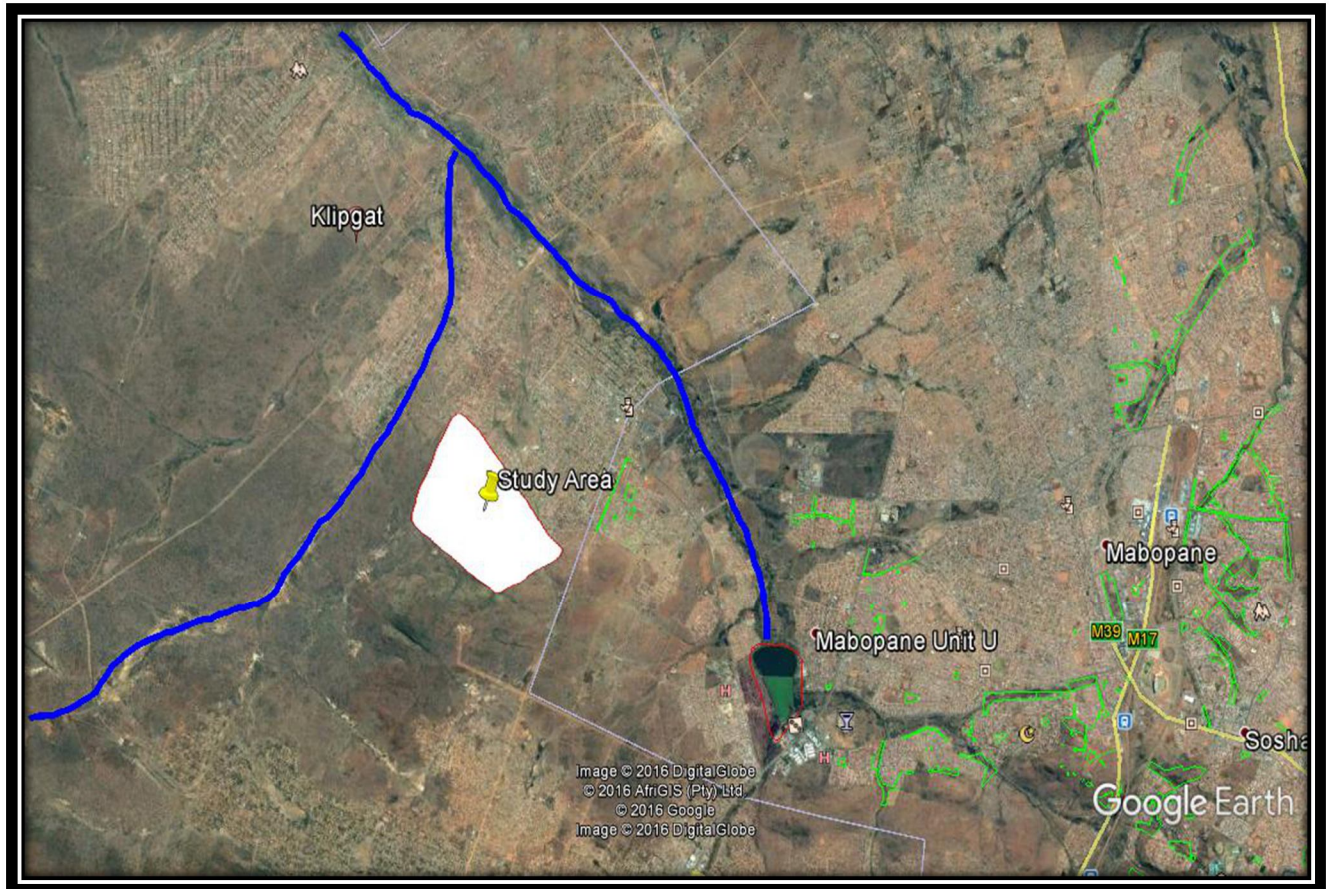


Figure 11: Map indicating the surface water

Issue

In the short term, surface and ground water may be impacted by construction activities, such as the contamination from fuels, cement, oils and other liquid waste. A potential impact on water quality may also arise from the risk of soil erosion and poor management during the construction phase. However, the nearest surface water is more than 1km from the proposed site. The study is outside the flood-lines.

Groundwater seepage (very weak to weak) is not expected within 1 m below surface.

Impacts surrounding ground and surface water quality

Table 5. Impacts surrounding ground and surface water quality

ISSUE:	GROUND AND SURFACE WATER QUALITY	
Project Phase	Construction and Operation	
Impact	Pollution of Surface and Ground Water systems	Health Impacts
Probability	Likely	Unlikely
Degree to which impact cannot be reversed	Low	Medium
Degree to which Impact may cause irreplaceable loss of resources	Low	Low
Confidence level	High	Medium
Significance Pre Mitigation	Low (-ve)	Low (-ve)
Significance Post Mitigation	Low (-ve)	Low (-ve)
Degree of Mitigation	Easily Mitigated	Moderately Mitigated
Nature	Negative (direct)	Negative (indirect)
Extent	Local	Local
Duration	Short Term	Medium Term

Recommended Mitigation

The following measures should be adhered to in order to limit the impact of the construction phase on the quality of water in the area:

Construction

- ❖ No construction camps within 50 m of drainage line and standing water source;
- ❖ No water abstraction for construction from streams;
- ❖ No mixing of concrete to occur within 50 m of water course;
- ❖ Appropriate containment structures to be provided;
- ❖ No construction activities to occur in any wetlands;
- ❖ No concrete batching to occur directly on the ground;
- ❖ All fuel storage to be appropriately bunded;

- ❖ Plant to have drip trays to contain any potential leakages of fuels and oils; and
- ❖ Ablutions for construction workers.

Operation

- ❖ All sewerage to be transported within the municipal sewer systems; and
- ❖ Pump stations to have backup facilities and 24 hour emergency storage.

ISSUE, POTENTIAL FLOODING

Issue

If managed correctly the construction activities onsite are unlikely to increase the potential for flooding in the area. However, the impact on lower lying areas should be verified. Once complete, the development will cause an increase in hard standing areas, such as roads, houses, roofs, etc. This will result in an increase in the volumes of storm water, which may lead to localised flooding. It is planned that the proposed development will direct storm water off-site thereby minimising the potential for flooding. However this is based on the assumption that storm water management is adequately addressed in the design.

Table 6: Impacts surrounding flooding

ISSUE:	FLOOD POTENTIAL	
Project Phase	Operation	
Impact	Loss of Property	Public Safety
Probability	Unlikely	Unlikely
Degree to which impact cannot be reversed	High	High
Degree to which Impact may cause irreplaceable loss of resources	Low	Low
Confidence level	Medium	Medium
Significance Pre Mitigation	Medium (-ve)	Medium (-ve)
Significance Post Mitigation	Low (-ve)	Low (-ve)
Degree of Mitigation	Easily Mitigated	Moderately Mitigated
Nature	Negative (direct)	Negative (direct)
Extent	Catchment	Catchment
Duration	Long Term	Long Term

Recommended Mitigation

On-site measures to attenuate peak flood discharge. This could be achieved through on-site water detention, grass-line swales, storm water infiltration systems, landscaping or a combination of the aforementioned; No development within 100 year flood line boundary.

ISSUE, AIR QUALITY

Issue

The clearing of vegetation in preparation for construction exposes the soil to dust which increases the Particulate Matter concentration in the atmosphere. PM is documented as contributing to respiratory tract infections, especially in rural areas much like the proposed site. Furthermore, heavy construction vehicles will be required during construction of the development. This could impact on air quality by pollution through exhaust emissions, as well as dust created by vehicles and the construction plant.

Table 7: Impacts surrounding the quality of air

ISSUE:	AIR QUALITY	
Project Phase	Construction	
Impact	Atmospheric pollution	Public Health
Probability	Likely	Likely
Degree to which impact cannot be reversed	High	High
Degree to which Impact may cause irreplaceable loss of resources	Low	Low
Confidence level	Low	Medium
Significance Pre Mitigation	Low (-ve)	Medium (-ve)
Significance Post Mitigation	Low (-ve)	Low (-ve)
Degree of Mitigation	Easily Mitigated	Easily Mitigated
Nature	Negative (direct)	Negative (direct)
Extent	Regional	Local
Duration	Long Term	Short Term

Recommended Mitigation

- ❖ Vegetated areas should not be cleared prematurely and exposed soil surfaces should be monitored, so not to further contribute to dust levels;

- ❖ Unnecessary clearing of vegetation to be avoided at all times;
- ❖ Dust suppression strategies should be implemented; and
- ❖ All plant to be of good condition with acceptable smoke emissions.

ISSUE, BIODIVERSITY

Issue

The biodiversity studies found that there is no wetland on the study site and the Grassland Biome and the Savanna Biome was deemed natural grassland that are considered less sensitive and should not be excluded from development as far as possible. The site has already undergone transformation from its perceived natural state. With regards to flora, there are no known red data species or significant indigenous vegetation on-site or within the project area, however upon when clearing commences these may be revealed. There will be limited habitat destruction, however it is believed that few mammals and reptiles may be impacted, particularly those that are nesting at the time. The site is currently used for grazing and is regularly burnt which has impacted on biodiversity. Habitat fragmentation is likely, but the impact should not be as severe due to the degraded nature of the site.

Table 8. Impacts on Biodiversity

ISSUE:	BIODIVERSITY	
Project Phase	Construction and Operation	
Impact	Impacts to Vegetation Types of Conservation Importance	Vegetation Impacts
Probability	Likely	Definite
Degree to which impact cannot be reversed	Medium	Medium
Degree to which Impact may cause irreplaceable loss of resources	Not Replaceable	Moderately Replaceable
Confidence level	High	High
Significance Pre Mitigation	Low (-ve)	Medium (-ve)
Significance Post Mitigation	Low (-ve)	Low (-ve)
Degree of Mitigation	Easily Mitigated	Easily Mitigated
Nature	Negative (direct and indirect)	Negative (direct)
Extent	Site	Site

Duration	Long Term	Long Term
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Table 8: Impacts on Biodiversity (continued)

ISSUE:	BIODIVERSITY	
Project Phase	Construction and Operation	
Impact	Disturbance to Resident Fauna	Habitat Fragmentation
Probability	Likely	Likely
Degree to which impact cannot be reversed	Medium	Medium
Degree to which Impact may cause irreplaceable loss of resources	Not reversible	Not reversible
Confidence level	Medium	High
Significance Pre Mitigation	Low (-ve)	Medium (-ve)
Significance Post Mitigation	Low (-ve)	Low (-ve)
Degree of Mitigation	Moderately Mitigated	Not Easily Mitigated
Nature	Negative (direct)	Negative (direct)
Extent	Site	Site
Duration	Medium Term	Medium Term

Recommended Mitigation

Care be taken to conserve the natural grassland in this proposed area through a management plan and through the implementation of the mitigation measures proposed in this specialist report.

ISSUE, EMPLOYMENT

Issue

The construction of the proposed development is likely to provide short term employment for casual labourers in the surrounding informational residential settlement. This may lead to increased skills development through contractor training. This is a positive impact of the project on employment in the surrounding area.

Table 9: Employment.

ISSUE:	EMPLOYMENT	
Project Phase	Construction	
Impact	Job Creation	Construction Workers
Probability	Highly Probable	Probable
Degree to which impact cannot be reversed	Low	Low
Degree to which Impact may cause irreplaceable loss of resources	Low	Low
Confidence level	Medium	Medium
Significance Pre Mitigation	Low (+ve)	Medium (-ve)
Significance Post Mitigation	Medium (+ve)	Low (-ve)
Degree of Mitigation	Easily Mitigated	Easily Mitigated
Nature	Positive (direct and indirect)	Negative (direct)
Extent	Regional	Local
Duration	Short Term	Short Term

Recommended Mitigation

- ❖ Contractors should be encouraged to source labour from surrounding areas; and
- ❖ External construction workers should be housed in secure camp and are to abide by rules of the EMP to prevent public disruption (i.e. Spread of HIV/AIDS, crime, public disturbance).

ISSUE, LAND USE

Issue

The proposed development will result in a change in land use, with some loss vegetation. However, it will impact positively on the current housing shortage within the MLM area because it will aim to address the number of informal settlements as well as providing housing to previously disadvantaged individuals who cannot afford houses.

Table 10: Impacts surrounding the establishment of Housing

ISSUE:	LAND USE	
Project Phase	Operation	
Impact	Provision of Housing	Community Upliftment
Probability	Definite	Probable

Degree to which impact cannot be reversed	Low	Low
Degree to which Impact may cause irreplaceable loss of resources	Low	Low
Confidence level	High	Medium
Significance Pre Mitigation	Medium (+ve)	Low (-ve)
Significance Post Mitigation	High (+ve)	Medium (-ve)
Degree of Mitigation	NA	NA
Nature	Positive (direct)	Positive (direct and indirect)
Extent	Local	Local
Duration	Long Term	Long Term

ISSUE, VISUAL AND NOISE

Issue

The proposed development will impact on the environment both visually and through limited noise pollution. The project site is currently adjacent to a residential and industrial area and therefore the construction of the development will disturb the landscape to a limited extent. Noise levels are expected to rise during the construction phase of the development. Construction activities that causes noise include vehicle trafficking, generator noise, pressure hammers and construction worker’s voices, etc. These noise levels are not assessed to be a nuisance to adjacent residents and communities.

Recommended Mitigation

Noise

- ❖ Designated working hours;
- ❖ Silencers on plant, construction vehicles and equipment; and
- ❖ Location of construction workers camp.

Visual

- ❖ Ensure site is maintained in a cleanly fashion;
- ❖ Construction completed on time;
- ❖ Site vegetation correctly according to rehabilitation guidelines stated in the EMP; and

- ❖ Construction waste is not to enter the biophysical or socio-economic environment. Contractors to produce waste management plans to mitigate potential impacts.

Table 11. Noise and Visual Impacts

ISSUE:	NOISE AND VISUAL	
Project Phase	Construction	Construction and Operation
Impact	Noise	Visual Impacts
Probability	Highly Probable	Highly Probable
Degree to which impact cannot be reversed	Medium	Medium
Degree to which Impact may cause irreplaceable loss of resources	Medium	Medium
Confidence level	Medium	Medium
Significance Pre Mitigation	Low (-ve)	Medium (-ve)
Significance Post Mitigation	Low (-ve)	Low (-ve)
Degree of Mitigation	Easily Mitigated	Moderately Mitigated
Nature	Negative (direct)	Negative (direct)
Extent	Local	Site
Duration	Short Term	Long Term

ISSUE, HEALTH AND SAFETY

Issue

The proposed development has minimal potential to create a health and safety risk for neighbouring residents from the community. The construction of the development does pose a health and safety risk to construction workers. This can be mitigated with the correct implementation of a health and safety plan to be developed by the contractor.

Table 12: The mitigation with the correct implementation

ISSUE:	SAFETY	
Project Phase	Construction	
Impact	Construction Workers	Public
Probability	Highly Probable	Probable
Degree to which impact cannot be reversed	Low	Low
Degree to which Impact may cause irreplaceable loss of resources	Low	Low
Confidence level	Medium	Medium
Significance Pre Mitigation	Medium (-ve)	Low (-ve)
Significance Post Mitigation	Low (-ve)	Low (-ve)
Degree of Mitigation	Easily Mitigated	Easily Mitigated
Nature	Negative (direct)	Negative (direct and indirect)
Extent	Site	Local
Duration	Short Term	Short Term

Recommended Mitigation

Public

- ❖ Site demarcated and access to public is to be prohibited;
- ❖ Safety and informative signage to be erected;

- ❖ Off-site movement of construction vehicles to adhere to rules of the road; and
- ❖ Pedestrians have the right of way.

Construction Workers

- ❖ To adhere to on-site Health and Safety guidelines; and
- ❖ A health and safety plan is to be developed and implemented as soon as land clearing commences.

ISSUE, SOLID WASTE POLLUTION

Issue

The construction phase of the development is likely to generate waste from clearing of vegetation, builder's rubble, general construction refuse and minor hazardous waste including paint tins, cleaning acids, asphalt's and oils. The development could therefore impact on the environment by generating solid waste pollution. The contractor and developer should ensure that all the waste generated by the development is appropriately disposed of at the recommended waste disposal sites close to the area. During the operations phase, Municipal waste management will service the proposed residential area. The licensed Waste Disposal Site is nearby the proposed development and has sufficient capacity to deal with waste produced on the proposed township development

Table 13: Impacts surrounding Solid Waste

ISSUE:	SOLID WASTE POLLUTION	
Project Phase	Construction	Operation
Impact	Construction Waste	General Waste
Probability	Highly Probable	Highly Probable
Degree to which impact cannot be reversed	Medium	Medium
Degree to which Impact may cause irreplaceable loss of resources	Low	Low
Confidence level	Medium	Medium
Significance Pre Mitigation	Medium (-ve)	Medium (-ve)

Significance Post Mitigation	Low (-ve)	Low (-ve)
Degree of Mitigation	Easily Mitigated	Easily Mitigated
Nature	Negative (direct)	Negative (direct and indirect)
Extent	Regional	Regional
Duration	Short Term	Long Term

Recommended Mitigation

Construction Waste

- ❖ To be removed from site promptly and deposited at permitted landfill site;
- ❖ No construction waste should enter the surrounding environment; and
- ❖ No cleared vegetation to be burnt on-site.

General Waste

- ❖ Waste to be collected regularly by municipality and deposited at permitted landfill site;
- ❖ MLM to develop a formal waste collection strategy;
- ❖ Roads design to cater for refuse collection trucks; and
- ❖ No waste should enter the surrounding environment.

ISSUE, HERITAGE RESOURCES

Issue

No features of cultural, historical or heritage significance or buildings/structures/graves greater than 60 years old were identified at the project site during the site visit. Therefore, the proposed development should not impact on the heritage resources of the area.

Table 14: Issues related to Heritage Resources

ISSUE:	HERITAGE
Project Phase	Construction and Operation
Impact	Heritage Resources
Probability	Unlikely

Degree to which impact cannot be reversed	N/A
Degree to which Impact may cause irreplaceable loss of resources	N/A
Confidence level	Medium
Significance Pre Mitigation	N/A
Significance Post Mitigation	N/A
Degree of Mitigation	Easily Mitigated
Nature	Neutral
Extent	Site
Duration	Short Term

Recommended Mitigation

No heritage resources were identified on site and therefore no mitigation measures are required. Should any artefacts, graves or features that may be of heritage value be excavated during the construction phase, work must stop and the heritage agency is to be notified immediately. Work may only commence once approval is given from the heritage agency.

Cumulative Impacts

The following cumulative impacts could be associated with a development of this nature.

Social

A development of this nature will cumulatively impact on the number of informal settlements, address the current housing shortage and will also create jobs throughout the construction and operation phases. It is essential to weigh the negative versus the positive impacts to obtain an overall cumulative social impact.

Table 15: Cumulative impacts on society

Issue	Impact	Significance Post mitigation	Interaction Opportunity	Significance of cumulative impact
Social Issues	Provision of Jobs	Low (+ve)	It is highly likely that these impacts will interact during either the construction phase, the operational phase or both.	Due to the location of the site it is not anticipated that the cumulative impact will be significant. Rather it is expected that the significance of the impact will be Medium (+ve).
	Provision of Housing	High (+ve)		
	Community Upliftment	Low (+ve)		
	Noise	Low (-ve)		
	Construction Workers	Low (-ve)		

14. ASSUMPTIONS AND KNOWLEDGE GAPS

The following assumptions and knowledge gaps have an influence on the assessment of the impacts in the EIA:

Site investigations and consultation with the community did not provide any evidence of sensitive heritage resources. It is therefore assumed that the site does not contain any resources of heritage value. However, there may be sensitive heritage resources subsurface which will only be discovered once excavations commence. Should this be the case the correct procedure would be to contact the responsible provincial and national heritage authorities;

All information provided by the applicant and the appointed specialist consultants was correct and valid at the time it was provided;

The EAP does not accept any responsibility in the event that additional information comes to light at a later stage of the process;

The heritage agency was notified at commencement of the EIA and no further feedback was obtained.

15. ENVIRONMENTAL IMPACT STATEMENT

Need and Desirability

In 2004, the Department of Housing declared the desire to eradicate informal settlements in South Africa by 2014 following the unprecedented housing backlog, proliferation of informal settlements, social exclusion and the inability of municipalities to provide basic infrastructure to the urban poor households.

Housing and service delivery is a key challenge facing the Madibeng Local Municipality (MLM). According to Madibeng Integrated Development Plan, 2013/2014 different communities in various wards set out their needs during the public participation process. The community need for different wards in Klipgat area include the following

- Land and Housing;
- Electricity;
- Water and sanitation;
- Roads and storm water;
- Social services; and

- Local Economic Development.

In terms of the Municipal Systems Act 32 of 2000, all municipalities (i.e. metropolitan, district and local) have to undertake an Integrated Development Plan (IDP) process to produce IDPs. As the IDP is a legislative requirement it has a legal status and it supersedes all other plans that guide development at local government level. The provision of integrated and sustainable human settlements is listed as one of the strategic objectives of the Municipality's IDP, which means that housing must be accompanied by the provision of other services and amenities required to improve the socio-economic conditions of the residents of that area (i.e. access to community facilities such as educational, entertainment, cultural, health, sports and welfare services).

The area of Klipgat was identified in the MLM IDP as a restructuring zone for social housing and Klipgat was identified as a precinct where residential expansion needs to take place

Positive and Negative Impacts

The Scoping and EIA phases of this project have not identified any fatal flaws which should prevent the project from proceeding.

Positive direct impacts include job creation and community upliftment. Furthermore, the development will address the shortage of formal housing in the Klipgat area.

Positive indirect impacts include utilising the 'undetermined' open area of land for the betterment of the community, instead of leaving it vacant and at the mercy of land invaders, therefore creating future problems for the Biophysical and Socio-economic environment. Post mitigation negative impacts discussed in this report are all rated as Low Significance.

Alternatives

Remaining Extent of the Farm Tyne 250 JQ is proposed by the Madibeng Local Municipality (MLM) as a suitable location for the proposed housing development for several reasons. The Portions are in close proximity to the settlement where the residents who are to be relocated are currently living. The land is municipal property and will not require a lengthy/costly process of land acquisition.

Due to the limited land availability for development in the area, no other site alternatives are proposed as part of this application. As most of the housing recipients work in the

areas close to the site, relocation elsewhere in the MLM is not considered to be a suitable alternative for the residents given the socio-economic and logistical factors involved.

16. EAP's Opinion on Authorisation of Activity

Given the low significance of the negative impacts of the project and the positive impacts associated with a development of this nature, it is the EAP's opinion that MLM be allowed to develop the land parcel according to the design considered in this EIA. Development should however be conducted in accordance with the recommendations given in this EIAR.

17. RECOMMENDATIONS

The Environmental Impact Assessment (EIA) process for the township has been undertaken in accordance with the EIA Regulations published in Government Notice No. R. 982 of 2014 in terms of Section 24 (5) of the National Environmental Management Act (Act No 107 of 1998) (as amended). To ensure that the activity is implemented in an environmentally responsible and sustainable manner, all applicable legislation was been considered during the assessment. The provisions in applicable legislation informed the identification and development of appropriate management and mitigation measures that should be implemented to minimise potentially significant impacts associated with the project.

The conclusions of this draft EIAR including comments and concerns from Interested and Affected Parties (I&APs), are as a result of a comprehensive EIA study. These studies are based on issues identified in the Environmental Scoping exercise as well as the public participation process.

The following Recommendations are deemed necessary by the EAP and should be included as conditions in an Environmental Authorisation for the Remaining Extent of the Farm Tyne 250 JQ housing development:

- In terms of design, surfaced roads should be enforced on flat slopes;
- No development to take place within 100 year flood line boundary
- Any sites of heritage significance discovered during the construction phase to be reported to the responsible heritage authority and all work in the vicinity of the find must stop. Work may only recommence on approval of the authority;
- No occupation of houses to take place until the required sewerage infrastructure and pump station is in place;

- The draft EMP for the construction phase must be completed with DREAD's conditions and requirements and signed by MLM, and the relevant contractor as implementing agents; and
- The EMP should be audited by a suitably qualified Environmental Control Officer. Audits should be undertaken, at least, on a monthly basis for the period of the construction and three (3) months after the construction is complete.
- Environmental audit report should be submitted to the DREAD on monthly basis.

18. CONCLUSIONS

This report details the findings of the Environmental Impact Assessment Report (EIAR) undertaken as part of the legislated EIA process for the proposed housing development on the Remaining Extent of the Farm Tyne 250 JQ.

This Final EIAR will be submitted to the DREAD for review and approval. Registered I&AP's will be further notified upon DREAD's decision which will be distributed to all registered I&AP's on receipt of the Environmental Authorisation, should one be granted.

19. REFERENCES

Madibeng Local Municipality, 2014/15: Integrated Development Plan.

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Conic North Consulting Engineers, 2016: Geotechnical Phase 1 for proposed development Regorogile, Report No: G16-0604

Conic North Consulting Engineers, 2016: Service Report for proposed development Regorogile, Report No: S16-0604

Bio Consulting, 2016: Biodiversity Assessment Study Impact Report

20. APPENDICES

APPENDIX 1	SITE LAYOUT AND LOCALITY MAP
APPENDIX 2	PUBLIC PARTICIPATION INFORMATION
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APPENDIX 4	SPECIALIST STUDY REPORTS
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	Heritage Impact Assessment Study
	Service Report Study (Traffic and Engineering Study)
	Geotechnical Study
	Visual Impact Assessment Study

APPENDIX 1: SITE LAYOUT AND LOCALITY MAP

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