



**DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED TOWNSHIP
ESTABLISHMENT ON ERVEN 189, 190, 191, 193, 194, 195 AND 10 000
NKANYEZI, ALFRED DUMA LOCAL MUNICIPALITY.**

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NOVEMBER 2021



Contents

Executive Summary	7
1 Introduction.....	8
2 Approach to the EIA studies – Terms of reference.....	8
2.1 Legal Framework for EIA.....	8
2.2 The Basic Assessment Process	9
2.3 Public Participation Process	9
2.4 Role of Interested and Affected Parties (IAPs).....	10
2.5 Specialist studies.....	10
2.6 Assessment of the significance of impacts	10
2.7 Mitigation measures and recommendations	11
2.8 Environmental management programme	11
2.9 Environmental Authorization and Appeal Process.....	11
3 Details of the EAP	11
4 Assumptions and gaps in knowledge	12
5 Applicable legislation, policies and/ or Guidelines.....	13
6 Project title.....	15
7 Project description.....	15
8 Services.....	17
8.1 Sewer Handling	17
8.2 Water Handling.....	17
8.3 Domestic Waste	17
8.4 Electricity	17
8.5 Access and Roads.....	17
8.6 Storm Water management	17
9 Project alternatives.....	17
9.1 Location alternative	18
9.2 Type of activity alternative	18
9.2.1 Transport, Traffic noise, and vibrations	18



9.3	No-go alternative	18
10	Need and Desirability	18
11	A description of the environmental aspects that may be affected by the activity and summary of specialist studies.....	22
11.1	Description of the environmental aspects that may be affected by the activity.....	22
11.1.1	Climate.....	22
11.1.2	Geology and Topography	23
11.1.3	Biodiversity	23
11.1.4	Hydrology.....	23
11.1.5	Current Land-Use	23
11.2	Summary of findings and recommendations of specialist studies and specialised processes	23
11.2.1	Terrestrial Biodiversity Assessment.....	24
11.2.2	Wetland Impact Assessment	24
11.2.3	Geotechnical Investigations	25
11.2.4	Heritage Impact Assessment.....	25
11.2.5	Flood line Analysis and Determination Report.....	26
11.	The public participation process	27
11.1.	Background	27
11.2.	Objectives of Public Participation	27
11.3.	Notification of the Interested and Affected Parties (IAPs).....	27
11.4.	Comments from Interested and Affected Parties.....	28
12.	Impact Assessment and Mitigation Measures.....	28
12.1.	Methodology for Environmental Impact Assessment.....	28
12.2.	Impacts that may result from the Planning and Design, Construction, Operational, Decommissioning and Closure Phases as well as proposed management of identified impacts and proposed mitigation measures	
	30	
12.3.	Summary of Impact Assessment.....	33
12.4.	Gaps in knowledge or assumption made in the assessment.....	38
12.5.	Significance	38
12.6.	A reasoned opinion as to whether the activity should or should not be authorized	38



13.	Recommendations by the ENVIRONMENTAL ASSESSMENT PRACTITIONER	38
14.	Environmental impact statement.....	38
15.	REFERENCES	39



ACRONYMS AND ABBREVIATIONS

BAR	Basic Assessment Report
EDTEA	Department of Economic Development, Environmental & Tourism
EMPr	Environmental Management Plan Report
NEMA	National Environmental Management Act
EA	Environmental Authorization
EIAr	Environmental Impact Assessment
I&AP	Interested and Affected Parties
EIA	Environmental Impact Assessment
SAHRA	South African Heritage Resource Agency
SAHRIS	South African Heritage Resource Information Systems
HIA	Heritage Impact Assessment
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer



TABLES

Table 1	Listed Activities triggered by the development
Table 2	Significance Ratings
Table 3	Key Environmental Impacts

FIGURES

Figure 1	Locality Map
Figure 2	Layout Map
Figure 3	Layout Plan

LIST OF APPENDICES

Appendix A	Locality Map
Appendix B	Layout Plan
Appendix C	Application Form
Appendix D	Screening Report
Appendix E	Specialist Studies
Appendix E.1	Ecological Studies
Appendix E.2	Heritage Impact Assessment Studies
Appendix E.3	Wetland Delineation Studies
Appendix E.4	Palaentological Impact Assessment Studies
Appendix E.5	Geotechnical Investigations
Appendix E.5	Bulk Engineering Services
Appendix E.6	Flood-line Analysis and Assessment
Appendix F	Public Participation
Appendix F.1	Communication to I&APs
Appendix F.2	Newspaper Advert
Appendix F.3	Register
Appendix F.4	Site Notices
Appendix F.5	Comments from I&Aps
Appendix G	Site Photographs
Appendix H	Environmental Management Programme
Appendix I	Specialist Declaration Forms
Appendix J	EAP Details and Declaration



EXECUTIVE SUMMARY

This draft basic assessment report concentrates on the proposed township establishment of 162 sites (Residential, Public Open Space and Roads) on erven 189, 190, 191, 193, 194, 195 10 000 of Nkanyezi under the jurisdiction of the Alfred Duma Local Municipality in Kwazulu-Natal Province.

The proposed establishment of a township will occupy an area of approximately 9.0825 hectares. Essential infrastructure such as potable water, sewage, electricity, roads and stormwater will also be supplied to make the development more sustainable.

The proposed development is listed in terms of Government Notice R324 and R327 the National Environmental Management Act, (Act 107 of 1998) and therefore requires an Environmental Impact Assessment (EIA) to be undertaken. The aim of the EIA is to ultimately ensure that environmental impacts are taken into consideration, to ensure stakeholder engagement, and to provide decision-makers with sufficient information to make an informed decision on the proposed development.

This document outlines the basic assessment process followed, describes the proposed development and the context in which it will take place, and identifies the potential environmental impacts.

A Public Participation Process runs concurrently with the Basic Assessment Phase. The purpose of this process is to identify all Interested and Affected Parties (I&AP"s), and to allow such parties the opportunity to provide input and comment regarding the EIA process, including issues and alternatives that are to be investigated. The Basic Assessment Report is made available for the public to comment. The Public Participation Process therefore facilitates informed decision-making. The BA Report (this document) represents the identification of key issues as highlighted by the relevant authorities, Interested and/or Affected Parties (I&AP) and professional judgement of the Environmental Assessment Practitioner. The Basic Assessment Process allows for the identification of the anticipated impacts, particularly those, which require specialist investigations in order to inform decision making in terms of environmental sustainability of the site and natural resource management. The results of all the specialist studies, a full assessment of the impacts and proposed alternatives.



1 INTRODUCTION

Mang Geoenviro Services was appointed by Alfred Duma Local Municipality to submit an application for Environmental Authorisation for the proposed establishment of a township (Residential, Open Space and Roads) on erven 189, 190, 191, 193, 194, 195 and 10 000 Nkanyezi under the jurisdiction of the Alfred Duma Local Municipality in Kwazulu-Natal Province. The site is located along an unnamed gravel road passing next to the site.

The proposed township establishment will occupy an area of approximately 9.0825 hectares. Essential infrastructure such as potable water, sewage, electricity, roads and stormwater will also be supplied to make the development more sustainable.

The proposed activity requires an Environmental Impact Assessment (EIA) to be undertaken in compliance with the regulatory requirements of the National Environmental Management Act (Act 107 of 1998) (NEMA) and the Environmental Impact Assessment (EIA) Regulations, 2010, GN R.453, R.544 and R546. The EIA process undertaken for this proposed development is Basic Assessment Process as the listed activity associated with the proposed development is under Listing Notice 1.

The Public Participation Process (PPP) as to date included: conducting a public meeting with the affected community, placing Notices on site and an advertisement of an advert on the local newspaper (The Eyethu Advertiser), distribution of Background Information Documents (BIDs) to the relevant Government Stakeholders and other Interested and Affected Parties (I&APS).

2 APPROACH TO THE EIA STUDIES – TERMS OF REFERENCE

This section provides a brief description of the EIA process, based on the National Environmental Management Act (107 of 1998) and other relevant amendments, which are to be undertaken.

2.1 Legal Framework for EIA

The EIA process, applicable to this application, is determined by the Amendments to the Environmental Impact Assessment Regulations, 2014, published in Government Notice R326 in Government Gazette No 40772 of 7 April 2017 promulgated under Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998).

The EIA regulations inter alia describe the procedure for EIA and provides a description of activities that would require authorisation through either 1) a Basic Assessment (in terms of Government Notices R327 and R324 of 2017) or 2) Scoping and Environmental Impact Assessment (in terms of Government Notice R325 of 2017).



The following activities are triggered by the proposed development:

Table 1: Listed activity triggered by the proposed development

Number and date of the relevant notice	Listed Activities	Description of the activity
Listing Notice 1 (GN R327)	Activity 9	The civil engineering specialist recommended installation of 33 x 2.0m x 1.7m culverts for bulk transportation of water or stormwater. However, this is included for upgrading purposes should the culverts be not enough for the site.
Listing Notice 1 (GN R327)	Activity 10	The civil engineering specialist recommended installation of 33 x 2.0m x 1.7m culverts for bulk transportation of sewage or waste water. However, this is included for upgrading purposes should the culverts be not enough for the site.
Listing Notice 1 (GN R327)	Activity 12	The recommended bulk storm water outlet structures will be undertaken within the vicinity of a water course with a 30m buffer.
Listing Notice 1 (GN R327)	Activity 27	The proposed development involves clearing and preparing of an area approximately 9.0825 hectares.

The proposed development triggers activities that require a Basic Assessment; an application is submitted in terms of Chapter 4 of the EIA Regulations to the KZN Department of Economic Development, Tourism and Environmental Affairs (EDTEA).

2.2 The Basic Assessment Process

The required Basic Assessment (BA) process which is being conducted in 3 phases namely:

- Phase 1: Project inception;
- Phase 2: Basic Assessment and Environmental Management Programme; and
- Phase 3: Authority review and response.

The report provides a description of the activity, description of property and location and a description of environment, legislation, need and desirability, significant impacts and management as well as mitigation.

2.3 Public Participation Process

The Public Participation Process (PPP) allows all I&AP's to voice their concerns and issues regarding the project.

The manner of undertaking the PPP is varied and is dependent on the nature of the project but require the following:

- The proposed development to be advertised in a local newspaper and on site;
- The adjacent landowners, tenants and resident's associations to be informed directly, in writing, of the application for environmental authorisation for the proposed development;
- Interested & affected parties and Stakeholders to be given a 30-day period within which to lodge any objections;



- After the 30-day period has expired a report is to be written on how any objections and/or comments raised by interested and affected parties together with an indication as to how the objections will be addressed, if at all.

2.4 Role of Interested and Affected Parties (IAPs)

Registered I&AP's have the right to bring to the attention of the Environmental Authority any issues that they believe may be of significance to the consideration of the application.

The rights of the I & AP's are qualified by certain obligations, namely:

- I&AP's must ensure that their comments are submitted within the timeframes that have been approved or set by the competent authority, or within any extension of a timeframe agreed to by the applicant or Environmental Assessment Practitioner (EAP);
- A copy of comments submitted directly to the competent authority must be served on the applicant or EAP; and
- Any direct business, financial, personal or other interest that they might have in the approval or refusal of the application must be disclosed.

The role of I&APs in a Public Participation Process usually include one or more of the following:

- Assist in the identification and prioritization of issues that need to be investigated;
- Make suggestions on alternatives and means of preventing, minimizing and managing negative impacts and enhancing project benefits;
- Assist in/ or comment on the development of mutually acceptable criteria for the evaluation of decision options;
- Contribute information on public needs, values and expectations;
- Contribute local and traditional knowledge; and
- Verify that their issues have been considered.

2.5 Specialist studies

Specialist studies provide an examination of key issues and environmental impacts. Specialists gather relevant data to identify and assess environmental impacts that might occur on the specific component of the environment that they are studying (e.g. vegetation, water quality, and pollution).

2.6 Assessment of the significance of impacts

It is necessary to determine the significance, or seriousness, of any impacts on the natural or social environment. The report will adopt a significance rating scale that determines the special, temporal, severity and certainty of any impact occurring which will allow the determination of the overall significance of an impact or benefit.



The overall intent of undertaking a significance assessment is to provide the relevant authority with information on the potential environmental impacts and benefits, thus allowing them to make a balanced and fair decision.

2.7 Mitigation measures and recommendations

Critical to an environmental assessment is the provision of practical and reasonable mitigation measures and recommendations that establish the actions that are needed in order to avoid or minimise any negative impacts from the development.

2.8 Environmental management programme

An Environmental Management and action programme will be based on the findings and recommendations set out in the BAR. The Environmental Management Programme (EMPr) consists of a set of practical and actionable mitigation, monitoring and institutional measures to be taken into account during construction and operation of a development. The aim is to eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. These plans will include:

- The standards and guidelines that must be achieved in terms of environmental legislation,
- Mitigation measures and environmental specifications which must be implemented at 'ground level' (i.e. during construction and operation),
- Provide guidance through method statements to achieve the environmental specifications,
- Define corrective action that must be taken in the event of non-compliance with the specifications of the EMPr,
- Prevent long-term or permanent environmental degradation.

2.9 Environmental Authorization and Appeal Process

Upon through of the BAR, the authority will issue an Environmental Authorisation or reject the application. Should authorisation be granted, it usually carries Conditions of Approval.

The proponent is obliged to adhere to these conditions.

I&AP's will be notified of the decision in terms of the NEMA Regulations and should an I&AP wish to appeal any aspect of the decision, they must within twenty (20) days of the date of notification of the decision, submit their appeal including supporting documents to the appeal administrator.

3 DETAILS OF THE EAP

In terms of the NEMA (as amended), an EAP is defined as "...the individual responsible for the planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management plans or any other appropriate environmental management instruments introduced through regulations." The EAP must be independent, objective and have expertise in conducting environmental



impact assessments. Such expertise should include knowledge of all relevant legislation and of any guidelines that have relevance to the proposed activity.

In order to be independent an EAP or person compiling a specialist report or undertaking a specialised process is to perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant. All material information in the possession of the EAP or person compiling a specialist report /undertaking a specialised process that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority in terms of these regulations are to be disclosed to the applicant and competent authority. Furthermore, the objectivity of any report, plan or document to be prepared by the EAP or person compiling a specialist report or undertaking a specialised process, in terms of these regulations for submission to the competent authority should furthermore also be disclosed to the applicant and competent authority.

In order to comply with this requirement, an information sheet was provided that contains information on the author of this report being Seli Mahlangu. An Environmental Assessment Practitioner from Mang Geoenviro Services (Pty) Ltd.

Table 2: Details of the EAP

Environmental Assessment Practitioner (EAP)	Seli Mahlangu
Consulting Company	Mang Geoenviro Services
Qualification of the EAP	National Diploma in Environmental Sciences
Expertise of the EAP	Seli Mahlangu is a registered SACNASP member (134515) with over 2 years of experience in the environmental sector where she has been groomed and exposed to different environmental applications and processes.

4 ASSUMPTIONS AND GAPS IN KNOWLEDGE

All information provided by Alfred Duma Local Municipality to the EAP 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.
- All data from unpublished research is valid and accurate.
- The scope of this investigation is limited to assessing the potential environmental impacts associated with township establishments.



5 APPLICABLE LEGISLATION, POLICIES AND/ OR GUIDELINES

In order to protect the environment and ensure that the proposed activity operate in an environmentally responsible manner, there are a number of significant pieces of environmental legislation and guidelines that need to be taken into account during this study. These include:

Table 3 : Applicable Legislation

LEGISLATION	SECTIONS	RELATES TO
The Constitution (No 108 of 1996)	Chapter 2	Bill of rights
	Chapter 24	Environmental Rights
National Environmental Management Act (No 107 of 1998, as amended)	Section 2	Defines the strategic environmental management goals and objectives of the government. Applies through-out the republic and to the actions of all organs of state that may significantly affect the environment.
	Section 24	Provides for the prohibition, restriction and control of activities which are likely to have a detrimental effect on the environment.
	Section 28	The developer has a general duty to care for the environment and to institute such measures as may be needed to demonstrate such care.
National Environmental Management: Waste Act (No 59 of 2008)		Provides for specific waste management measures and the remediation of contaminated land.
Environmental Conservation Act (No 73 of 1989) and regulations.	Section 19 and 19A	Prevention of littering by employees and sub-contractors during construction and the maintenance phases of the proposed housing project.
National Heritage Resources Act (No 25 of 1999) and regulations	Section 34	No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.
	Section 35	No person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site.
	Section 36	No person may, without a permit issued by the South African Heritage Resource Agency (SAHRA) or a provincial heritage resources authority destroy, damage, alter, exhume, remove from its original position



		or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority. "Grave" is widely defined in the Act to include the contents, headstone or other marker of such a place, and any other structure on or associated with such place.
	Section 38	This section provides for Heritage Impact Assessments (HIAs), which are not already covered under the ECA. Where they are covered under the ECA the provincial heritage resources authorities must be notified of a proposed project and must be consulted during the HIA process. The Heritage Impact Assessment (HIA) will be approved by the authorizing body of the provincial directorate of environmental affairs, which is required to take the provincial heritage resources authorities' comments into account prior to making a decision on the HIA.
Occupational Health and Safety Act (No 85 of 1993)	Section 8	General duties of employers to their employees
	Section 9	General duties of employers and self-employed persons to persons other than their employees
National Water Act (No 36 of 1998) and regulations	Section 19	Prevention and remedying the effects of pollution
	Section 20	Control of emergency incidents
	Section 21	The need for a Water Use License Application will have to be considered as per the specialist recommendation.
Hazardous Substances Act (No 15 of 1973) and regulations		Provides for the definition, classification, use, operation, modification, disposal or dumping of hazardous substances
National Road Traffic Act (No 93 of 1996)		Road Safety
SANS 10103 (Noise Regulations)		The measurement and rating of environmental noise with respect to annoyance and to speech communication.



6 PROJECT TITLE

The proposed township establishment on erven 189, 190, 191, 193, 194, 195 and 10 000 Nkanyezi under the jurisdiction of the Alfred Duma Local Municipality in KwaZulu Natal Province.

7 PROJECT DESCRIPTION

The proposed development site is located on an area approximately 9.0825 hectares, 34km Northwest of Alfred Duma Local Municipality along Montague Street. The proposed development site is partially occupied by existing infrastructures and from the environmental perspective, it is not sensitive; therefore, it is suitable for the proposed township since the surrounding properties are being used as residential stands (Please refer to appendix 6 for site photographs).

As a result of scarcity of suitable settlement slopes, there has been and increase significant encroachment onto relatively marginal land such as steep slopes and water resources which are highly susceptible to environmental degradation, particularly soil erosion.

The coordinates of the site: 28°01'1.52"S 30°03'55.63"E.



Figure 1: Locality map of the proposed development site in Nkanyezi

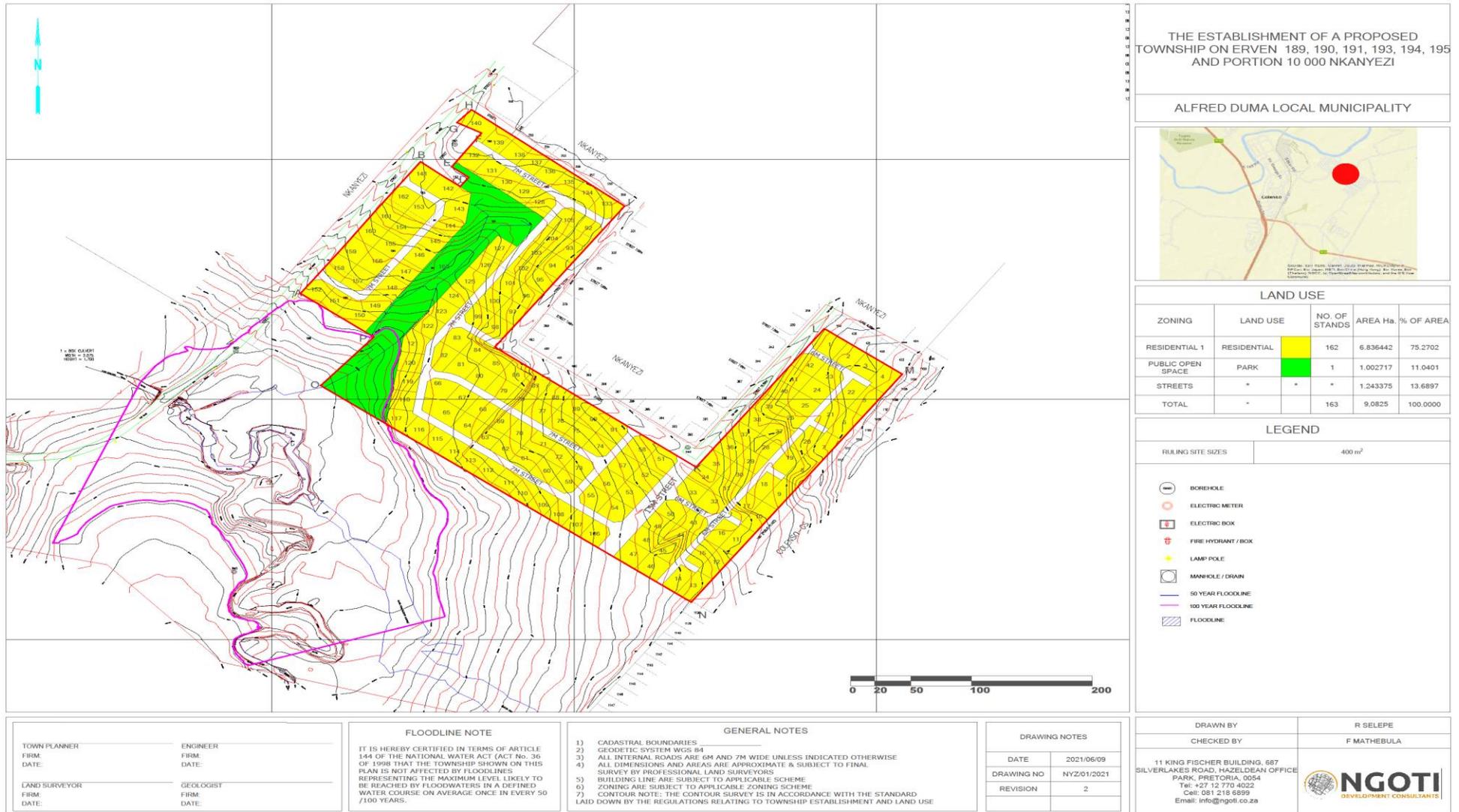


Figure 2: Layout Plan for the proposed development



8 SERVICES

8.1 Sewer Handling

There is an existing sewage system located within the existing residential area draining sewerage towards an existing pump station located west of the proposed development site to the Colenso Waste Water Treatment Works.

8.2 Water Handling

The water scheme is supplied by the Colenso Water Treatment Works (WTW) which abstracts water directly from the Thukela River.

8.3 Domestic Waste

A regional landfill situated nearest the site is to be used to dispose solid waste. The local municipality is responsible for connecting and disposing the solid waste. If the municipality is not able to provide this service, then a private company will need to be appointed by the development owners for the service.

A refuse area with bins will be done onsite and solid waste will be disposed of at the municipal dump site as per the municipal health bylaws.

8.4 Electricity

There is an existing Eskom network within the vicinity of the proposed development site which will supply approximately 583.20 kVA.

8.5 Access and Roads

The proposed development site can be accessed via existing road network of the adjacent townships.

8.6 Storm Water management

According to the Engineering Services Report, there is a natural drainage pattern that flows from the north east to south west of the proposed development site.

9 PROJECT ALTERNATIVES

Describe the proposal and alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished. The determination of whether the site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment.

The no-go option must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.



9.1 Location alternative

There is no alternative site for the proposed development, as the project area is located within the problem area and if the project is changed to another area, the problem will remain the same or unsolved.

9.2 Type of activity alternative

9.2.1 Transport, Traffic noise, and vibrations

The major impacts that can be brought about by the development are soil erosion. Options that exist to reduce these impacts are:

- Rehabilitation of affected areas after the construction phase is finished
- Avoiding unnecessary vegetation clearance
- Proper management of topsoil throughout the development

9.3 No-go alternative

The no-go alternative is the option not to go ahead with the development. The no-go alternative will only be considered as an alternative if it is concluded that the preferred alternative will have significant negative impacts on the environment which cannot be reduced or managed to an acceptable level. As there it has already been indicated that there is a need and desirability for the proposed development it is anticipated that this development will relieve the demand for housing and basic services in the region. It is anticipated that the no-go alternative will constrain the development planning of the Local Municipality.

10 NEED AND DESIRABILITY

The concept of 'need' and 'desirability' relates to the nature, scale and location of the development being processed, as well as the efficient use of the land. The DEA Guideline on Need and Desirability, Integrated Environmental Management Guideline Series 9, provides questions to be considered when determining the need and desirability of the proposed activities. These questions require the description of the need and desirability of the proposed activity in the environmental- and socio-economic context. The information required per the guideline was summarised in the table below. Since the development will be situated in the Alfred Duma Local Municipality, the ADLM IDP was used as the main source to populate the table below:

Will the activity be in line with the following?
Provincial Spatial Development Framework (PSDF)
The Municipality IDP state that the spatial development strategies of the ADLM need to be supportive of the objectives of international and national policies, principles and initiatives to reduce poverty and inequality, the National Development Plan Vision 2030 (NDPV), Implementation Framework and Plan (IF&P), and the principles set in the Spatial Planning Land Use Management Act 2013.



The NDPV provide the following outcomes, mechanisms necessary for the outcomes and conditions necessary:

The socio-economic outcomes include:

- Economy and employment
- Improving education, training and innovation
- Social protection

Mechanisms necessary to achieve the outcomes include:

- Economic Infrastructure
- Transforming human settlements
- Environmental sustainability and resilience
- Inclusive rural economy

The conditions necessary include:

- Building a capable and developmental state
- Fighting corruption
- Building supportive, safe and cohesive communities

The establishment of the township is part of an infrastructure development plan as this promotes social and economic growth in an area. Where possible (unless the necessary skills are not available) the local communities will be used to source training, labour and services required for the construction and maintenance of the development.

An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)

The proposed development is not expected to compromise the existing environmental management priorities for the area. According to the IDP, the most negative aspects requiring environmental management, bearing high priority are:

- Sewerage spillage.
- Dumping / pollution – landfill site / inadequate refuse removal.
- Road maintenance.
- Crime.

It is not anticipated that the proposed township establishment will affect or increase the negativity of any of the above-mentioned aspects.

Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?



Six (6) strategic objectives were identified providing Spatial Strategic Focus Areas (areas of intervention at local level):

- Strategic Objective 1: Economic development and job creation supporting and guiding development.
- Strategic Objective 2: Promoting education, training and innovation.
- Strategic Objective 3: Accommodating urbanisation and transforming human settlements.
- Strategic Objective 4: Promote the development of the rural areas within the municipality that can support sustainable economic, social and engineering infrastructure.
- Strategic Objective 5: Protect biodiversity, water and agricultural resources
- Strategic Objective 6: Infrastructure Investment.

The proposed township establishment will directly and indirectly contribute to strategic objectives 1, 2, 4 and 6. Strategic Objective 5 was considered during the planning and design phase of the proposed development. The route was designed in such a manner to prevent unnecessary disturbances to biodiversity and agricultural resources by ensuring that disturbance is only limited to the site.

Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)

The proposed township establishment will play a role in job creation and forms part of poverty alleviation within and surrounding local communities.

Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development?

The proposed township establishment is located within a municipal service area therefore establishing the township will connect to the municipal infrastructure after the necessary approvals.

Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)?

The objectives of the municipality infrastructure Master Plan are:

- To enhance municipal capacity to provide bulk.
- Infrastructure in providing basic services and project management.
- Bulk infrastructure development.
- Project planning and implementation.
- Project management.
- Infrastructure maintenance.
- Housing



Based on these objectives, the proposed development is not expected to impact the infrastructure planning of the municipality.
Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)
The location of the proposed township establishment is suitable for the development, since is bordered by an existing residential area.
Is the development the best practicable environmental option for this land / site? grazing) will not be compromised.
The site is already disturbed. This development is not anticipated to sterilize the land from other environmental activities and land uses, as the potential for certain agricultural practices.
Will the benefits of the proposed land use / development outweigh the negative impacts of it?
Decommissioning and rehabilitation of the disturbed areas will adequately mitigate the negative impacts. The establishment of this township will improve the socio-economic profile of the area.
Will any person's rights be negatively affected by the proposed activity(ies)?
It is not anticipated that any person's rights will be negatively affected. All I&APs, relevant stakeholders and landowners will be consulted, their inputs received during public and stakeholder meetings will be incorporated into the report and submitted to the department.
Will the proposed activity (i.e.s) compromise the "urban edge" as defined by the local municipality?
The proposed development is on the urban edge and it will not be compromised.
What will the benefits be to society in general and to the local communities?
Where possible (unless the necessary skills are not available) the local communities may be sourced for training, labour and services required. Therefore, the direct benefits experienced by society, will be related to short term employment opportunities (i.e for construction), continued employment during the operation of the township.
Any other need and desirability considerations related to the proposed activity?
The proposed development will satisfy the need of the general public in supplying reliable township infrastructure.
How does the project fit into the NDP for 2030?
<p>The NDP Cycle of Development presupposes that the ultimate goal for development in South Africa is social cohesion through formulation and implementation of clear policies and sets of planned actions around:</p> <ul style="list-style-type: none"> • Poverty reduction • Economic growth • Employment creation • Rising living standards <p>This project will contribute positively to the lives of the surrounding communities.</p>



Please describe how the general objectives of Integrated Environmental Management as set out in section 24 of NEMA have been taken into account.

Section 24 of NEMA provides for consideration, investigation, assessment and reporting of the potential consequences for or impacts on the environment of listed activities (or specified activities) to the Competent Authority. Depending on the nature of the project, permissions other than environmental authorisations may also be required. In most cases the decisions are made at a national or provincial level but in a few cases the decision-making is handled at the municipal level, such as in instances where land needs to be rezoned before a particular activity can commence.

The approach followed by the EAP was based on the specifications for the undertaking of a Basic Assessment as provided in Appendix 1 of the EIA Regulations of December 2014 (amended as of April 2017).

Please describe how the principles of Environmental Management as set out in section 2 of NEMA have been taken into account.

Environmental Management as a process under the implementation framework thus provides for the integrated consideration of human, natural and cultural environment matters into the coordinated policy, implementation and monitoring review frameworks of development plans. Environmental management forms an integral part of the planning and development process and provides for the sustainable utilization of available resources. The Environmental Management has been considered for this BAR project through I&APs identification, stakeholder consultation, possible environmental impacts identification and the compilation of mitigation measures presented in the EMPr for the proposed project development.

11 A DESCRIPTION OF THE ENVIRONMENTAL ASPECTS THAT MAY BE AFFECTED BY THE ACTIVITY AND SUMMARY OF SPECIALIST STUDIES

11.1 DESCRIPTION OF THE ENVIRONMENTAL ASPECTS THAT MAY BE AFFECTED BY THE ACTIVITY

11.1.1 Climate

The climate in Alfred Duma Local Municipality is relatively mild with average rainfall within the region of 750mm that falls mainly in summer months as indicated in the South Africa rainfall Map, the proposed area region falls under the region of 500 to 2 000mm. In winter, climate is mild to cold and in summer is warm to hot, the days are usually sunny and bright and the nights are cool and clear while in winter sunshine average almost 7 hours a day. The climate in the Nkanyezi is situated at an altitude of approximately 1 015m above sea level, the town experiences an average maximum temperature of 25°C and the average minimum of 10°C with the mean annual average temperature of 16.50°C. In January the temperatures are high and in July is the coldest.



11.1.2 Geology and Topography

The Alfred Duma Municipality topography is defined by the hilly, undulating landscapes, moderate to steeply slopes, broad valleys and flat plains along with the rolling hills as the study area is located on the foothills of the Drakensburg Mountains. The slopes of the study area ranges moderately but there are some steep slopes areas, since the study area is dominated the Grass and the Savannah biomes there are mainly flat plains and rolling within the escarpment itself. The geology of the area is characterized by mudstones, shales and fine-grained sandstones of the Beaufort and Ecca groups along with Karroo super-group and limited Jurassic dolerite intrusion.

11.1.3 Biodiversity

The proposed development site falls within the Savanna Biome and the vegetation type is KwaZulu-Natal Highland Thornveld (Figure 3), which is usually dominated by *Hyparrhenia hirta* and has scattered *Vachellia trees*.

11.1.4 Hydrology

Alfred Duma Local Municipality is characterized by three drainage systems known as Sunday River, uThukela and klip river. The uThukela fast flowing river forms the southern boundary of the municipality with tributaries drainage southern wards to the river. The klip river and the Sundays Rivers are the most important in the Alfred Duma Local Municipality area along with its tributaries which drain into the uThukela River which is the largest river system in the Kwazulu-Natal Province.

Irrigation system in Ladysmith is sourced from the klip River, Sunday's River and partially from uThukela which it supplies towns and townships along with the rural areas.

11.1.5 Current Land-Use

The proposed development site is partially occupied by residential houses.

11.2 SUMMARY OF FINDINGS AND RECOMMENDATIONS OF SPECIALIST STUDIES AND SPECIALISED PROCESSES

The necessary specialist studies and specialized processes have been performed in areas where possible negative impacts were identified. This was done according to Section 32 of Regulations No. R. 543 published in the Government Notice No. 33306 of 18 June 2010 of NEMA. Specialist studies relevant to the project include:



11.2.1 Terrestrial Biodiversity Assessment

An ecological study was conducted to assess the area for protected and endangered plant and animal species.

Details of the Specialist:

MORA Ecological Services (PTY) LTD

350 Johan St, Arcadia

Pretoria

0083

Cell: 081 4103 763

Contact Person: Ramokone Mothwa

Area of expertise: Ecology Specialist.

Findings:

The study area falls within the Savanna Biome and the vegetation type is KwaZulu-Natal Highland Thornveld which is usually dominated by *Hyparrhenia hirta* and has scattered *Vachellia trees*. The study area is of Low ecological function and Low conservation importance.

11.2.2 Wetland Impact Assessment

This study was conducted to identify and assess the Aquatic features which occur within or close-by the proposed site.

Details of the Specialist:

MORA Ecological Services (PTY) LTD

350 Johan St, Arcadia

Pretoria

0083

Cell: 081 4103 763

Email:

Contact Person: Ramokone Mothwa

Area of expertise: Ecology Specialist.

Findings:

There is a highly disturbed wetland within the boundary of the proposed site, however, 32 m buffer distance has been applied. There is only one NFEPA wetland outside the proposed site. The site did not have any aquatic vegetation. Impacts which were observed around the study site included soil deposition and sewer effluent flowing into the wetland areas

Recommendations:

- Applicable buffers should be applied to all wetlands within or close-by the proposed site in order to protect them.



- It is recommended that a General Water Use License Application be favourably considered.

11.2.3 Geotechnical Investigations

This study was conducted to establish the site stratigraphy and the relevant engineering properties of the encountered sub- surface soils and to give recommendations on how the proposed development can proceed.

Details of the Specialist:

Masana Waste and Environmental Management

420 Festival Street

107 Intersite Office

Hatfield

Pretoria

0083

Cell: 012 342 0144

Email: golden@mwem.co.za

Contact Person: G Mangayi

Area of expertise: Geologist

Findings:

Problem soils such as dolomite and marshy areas were not spotted on site. There is a fair bearing pressure of the underlying soil horizons due to the derived Estimated Allowable Safe Bearing Pressure (EASBP) which ranges between 53 kPa and 317 kPa. The laboratory tests results indicate that the soil material from the proposed site is classified MH (Inorganic silts and fine sand soils) and GM (silty gravels).

Recommendations:

- It is recommended that clay material should be removed and replaced with suitable material with no heave or high compressibility potential during the construction phase.

11.2.4 Heritage Impact Assessment

This study was conducted to identify all sites of cultural heritage (archaeological and historical) significance and the nature of archaeological features.

Details of the Specialist:

Apelser Archaeological Consulting

P.O Box 73703

Lynnwood Ridge

0040



Cell: 083 459 3091

Email: golden@mwem.co.za

Contact Person: A.J Pelser

Area of expertise: Archaeology

Findings:

No sites, features or material of cultural heritage (Archaeological and/or historical) origin of significance were identified on the proposed site.

Recommendations:

- It is recommended that should an unknown or invisible sites, features or material be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward.

11.2.5 Flood line Analysis and Determination Report

This study was conducted to determine the flood line of the catchment area of the proposed site

CivilConsult Systems (Pty) Ltd

Details of the Specialist:

Leon Wentzel

541 Jorissen Street

Sunnyside

Pretoria

0002

Cell: 012 343 6297

Email: mail@civilconsult.co.za

Contact Person: Jorrisen Wentzel

Area of expertise: Civil Engineer

Findings:

The peak run off for catchments areas were calculated by Rational Method to determine flood lines for catchment areas 1 and 2 and the results indicated that both catchments have peak flows which are less 15 km²



11. THE PUBLIC PARTICIPATION PROCESS

11.1. Background

Public participation is part of the EIA process which is governed under the principles of NEMA as well as the EIA regulations. It is defined as the process by which an organization consults with all interested or affected parties (I&APs) which include organizations, government entities, community, NGOs, etc., before deciding. It is a two-way communication and collaborative problem solving with the goal of achieving better and more acceptable decisions. It provides all the stakeholders including the community with a platform to raise their concerns before the Competent Authority can make a final decision about the environmental authorization. This prevents and minimizes disputes before they become unsolvable. Chapter 6 of the EIA regulations emphasize that the information related to the proposed project must be made available to I&APs, prior to a final decision. Therefore, this process will allow I&APs to have access to the information relating to this project. The Application was conducted according to Chapter 6 of the EIA Regulations 2017.

11.2. Objectives of Public Participation

- To inform and involve the community and the stakeholders about the development happening in Nkanyezi.
- To identify and address the community and stakeholder's concerns regarding this activity.
- To provide opportunities for the community, relevant government departments, surrounding businesses, the residents and other stakeholders to raise their concerns, suggest solutions and identify priorities or issues.

11.3. Notification of the Interested and Affected Parties (IAPs)

Newspaper Advertisement	The proposed project was advertised in the local newspaper (Eyethu Advertizer) to inform people about the project and request them to register their names and comment on the proposed development. (Please refer to appendix 4.1)
Site Notices	Notices were place in noticeable places i.e. Fence and electricity poles within the vicinity of the site. . (Please refer to appendix 4.1)
Background Information Document (BID)	A BID was distributed to organs of state, owners and occupiers of adjacent landowners and requested them to register as IAPs. . (Please refer to appendix 4.1)
Draft BAR Circulation	The draft Basic Assessment was distributed to Organs of state and IAPs.
Public Meeting	No public meeting was held to discuss the project.



11.4. Comments from Interested and Affected Parties

Please see Appendix F.5

12. IMPACT ASSESSMENT AND MITIGATION MEASURES

12.1. Methodology for Environmental Impact Assessment

The impacts anticipated to occur as a result of the proposed development will be evaluated to determine their significance.

Significance will be determined for scenarios involving both „before“ and „after“ mitigation. The baseline scenario is ultimately evaluated, bearing in mind that the environmental planning exercise as well as the process of investigating alternatives has already excluded a number of significant impacts.

The following is the equation applied to determine the significance of the impact:

Significance (S) = [Irreplaceable (I) Extent (E) + Duration (D) + Magnitude (M) + Reversibility (R)] x Probability (P)

$$S = (I + E + D + M + R) \times P$$

Nature	Classification of whether the impact is positive or negative , direct or indirect
Extent	Spatial scale of impact and classified as: Site: the impacted area is the whole site or a significant portion of the site Local: within a radius of 2 km of the construction site. Regional: the impacted area extends to the immediate, surrounding and neighbouring properties. National: the impact can be considered to be of national significance.
Duration	Indicates the lifetime of the impact and is classified as: Short term: the impact will either disappear with mitigation will be mitigated through natural processes in a span shorter than the construction phase. Medium term: the impact will last for the period of the construction phase, where after it will be entirely negated. Long term: the impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter. The only class of impact which will be non-transitory. Permanent: mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.
Intensity	Describes whether an impact is destructive or benign Low: impact affects the environment in such a way that natural, cultural and social functions and processes are not affected.



	<p>Moderate: affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way.</p> <p>High: natural, cultural and social functions and processes are altered to extent that they temporarily cease.</p> <p>Very high: natural, cultural and social functions and processes are altered to extent that they permanently cease.</p>
Probability	<p>Describes the likelihood of an impact to occur:</p> <p>Improbable: likelihood of the impact materializing is very low.</p> <p>Possible: the impact may occur.</p> <p>Highly probable: most likely that the impact will occur.</p> <p>Definite: the impact will occur.</p>
Significance	<p>Based on the above criteria the significance of issues was determined. The total number of points scored for each impact indicates the level of significance of the impact, and is rated as follows:</p> <p>Low: the impacts are less important.</p> <p>Medium: the impacts are important and require attention, mitigation is required to reduce the negative impacts.</p> <p>High: the impacts are of great importance. Mitigation is therefore crucial.</p>
Cumulative	<p>In relation to an activity, means 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.</p>
Mitigation	<p>Where negative impacts are identified, mitigation measures (ways of reducing impacts) have been identified. An indication of the degree of success of the potential mitigation measures is given per impact.</p>

Table 2: Impact Assessment Rating

Criteria for the rating of impacts				
Criteria	Description			
Extent	National	Regional	Local	Site
Duration	Permanent	Long-term	Medium-term	Short-term
Intensity	Very high	High	Moderate	Low
Probability	Definite	Highly probable	Possible	Improbable
Points allocation	4	3	2	1
Significance Rating of classified impacts				
Impact	Points	Description		



Low	4-6	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.
Medium	7-9	Mitigation is possible with additional design and construction inputs.
High	10-12	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.
Very high	13-16	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/ or operational phases. The effects of the impact may affect the broader environment.
Status	Perceived effect of the impact	
Positive (+)	Beneficial impact	
Negative (-)	Adverse impact	
Negative impacts are shown with a (-) while positive ones are indicated as (+)		

12.2. Impacts that may result from the Planning and Design, Construction, Operational, Decommissioning and Closure Phases as well as proposed management of identified impacts and proposed mitigation measures

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A (2) of this report.

Land use

The site is partly occupied; therefore, negative impacts are expected regarding the land use.

Impact	Extent	Duration	Probability	Significance before Mitigation	Significance after Mitigation
Change of land use	Site	Long term	Unlikely	Medium	Low



Geography and Topography

The topography of the site is gently draining towards the main road. No negative impacts are anticipated with regards to the geography and topography.

Impact	Extent	Duration	Probability	Significance before Mitigation	Significance after Mitigation
Topography	Local	Long term	Unlikely	Low	Low
Geography	Local	Long term	Unlikely	Low	Low

Topsoil and Erosion

The geological composition of the site is considered suitable for the proposed activity. No negative impacts were identified.

Impact	Extent	Duration	Probability	Significance before Mitigation	Significance after Mitigation
Erosion	Site	Short Term	Probable	Medium	Low

Wetland

A wetland was identified within the boundary of the proposed development site.

Impact	Extent	Duration	Probability	Significance before Mitigation	Significance after Mitigation
Pollution of waterbodies and soil	Site	Long Term	Probable	Medium	Low
Soil erosion and sedimentation	Site	Long Term	Probable	Medium	Low
Degradation of waterbodies	Site	Long Term	Probable	Medium	Low

Heritage Sites

The site is of low heritage significance.

Impact	Extent	Duration	Probability	Significance before Mitigation	Significance after Mitigation
Heritage Sites	Site	Long term	Unlikely	Low	Low

Construction camp, workforce discipline and materials stockpiles

An inadequately planned construction camp and stockpiles depot may result in pollution, littering and noise. The construction camp and sanitation facilities for labour will be established on a less sensitive site and will be provided with chemical toilets.

Impact	Extent	Duration	Probability	Significance Before Mitigation	Significance after Mitigation
Littering & Pollution	Site	Short term	Probable	Medium	Low



Safety/ Injury	Site	Short term	Probable	Medium	Low
Discipline	Local	Short term	Probable	Medium	Low

Generation of noise, dust and vibrations during construction

Noise and dust will be generated during construction. Appropriate measures will be implemented to minimize this impact. These issues are addressed in the EMPr.

Impact	Extent	Duration	Probability	Significance before Mitigation	Significance after Mitigation
Noise	Site	Construction	Definite	Medium	Low
Dust	Site	Construction	Definite	Medium	Low
Vibration	Site	Construction	Definite	Medium	Low

Visual and aesthetic impacts

During construction the site may be untidy and unused items and spoil materials as well as stockpile areas may not be visually attractive. However, this will be of temporary nature to attain the operational phase. No negative long term visual or aesthetic impacts are foreseen as the final product will be well-designed industrial township forming an integral part of the local area.

Impact	Extent	Duration	Probability	Significance before Mitigation	Significance after Mitigation
Visual	Site	Short term	Definite	Medium	Low
Aesthetic	Site	Short term	Definite	Medium	Low

Generation of spoil material and waste during construction

Spoil material and solid waste will be generated during construction. Disposal of domestic waste and building rubble will be done at a permitted site. The potential significance of this impact is rated as low.

Impact	Extent	Duration	Probability	Significance before Mitigation	Significance after Mitigation
Spoil & Waste	Site	Construction	Definite	Medium	Low

Traffic and neighbourhood disruptions during construction

The proposed township will have a minimal destruction to close by residence only during the construction phase. Effective measures will be implemented to avoid disruption of access to the residence.

Impact	Extent	Duration	Probability	Significance Before Mitigation	Significance After Mitigation
Traffic Disruptions	Site	Construction	Definite	Medium	Low

Environmental pollution & waste management

Pollution and waste disposal is likely to occur during the construction phase. Strict precautions must be taken to prevent possibilities of pollution and the generated waste and refuse will require efficient waste management.



Refuse bins should be conveniently located, and effort should be made to keep paper, plastic and bio- degradable materials separate for recycling.

Impact	Extent	Duration	Probability	Significance Before Mitigation	Significance After Mitigation
Environmental Pollution	Site Local	Short term	Probable	Medium	Low
Waste Management	Site Local	Short term	Probable	Medium	Low

Social and economic impacts for the local area

It is anticipated that the development will have only positive impacts to the local society by providing job opportunities during the construction and operation phases. The use of local labour will have significant positive impact for labour in the local community.

Impact	Extent	Duration	Probability	Significance Before Mitigation	Significance After Mitigation
Socio-Economic	Local	Construction & Operational	Definite	Medium	Positive

12.3. Summary of Impact Assessment

The impacts assessed in the previous section are summarized in the table below.

Table 3: Impact assessment table for the proposed phases of the development

Phase	Nature of impact	Extent	Duration	Intensity/ severity	Probability/ Certainty	Significance	
						Before mitigation	After mitigation
Construction and Planning	Geography & Topography	Site	Long term	Low	Unlikely	Low	Low
	Land use	Site	Long term	Low	Definite	Medium	Low
	Heritage sites	Site	Long term	Medium	Unlikely	Low	Low
	Biodiversity	Site	Long term	Low	Unlikely	Low	Low
	Wetland	Site	Long term	Medium	Probable	Medium	Low
	Surface & groundwater	Site	Short term	Medium	Unlikely	Medium	Low
	Generation of noise, dust and vibrations	Site	Short term	Medium	Definite	Low	Low
	Generation of spoil material and construction waste	Site	Short term	Low	Definite	Medium	Low



	Construction camp, discipline & materials stockpiles	Local	Short term	Low	Definite	Medium	Low
	Workforce management, littering & domestic waste	Site	Short term	Medium	Definite	Medium	Low
	Visual	Site	Short term	Medium	Probable	Medium	Low
	Topsoil & erosion	Site	Short term	Medium	Probable	Medium	Low
Operational	Aesthetic	Local	Long term	High	Unlikely	High	Low
	Environmental pollution & Waste management	Local	Long term	High	Unlikely	High	Low
	Social & Economic Impacts	Local	Short term	Medium	Definite	Status positive	High
	Impact on municipal services	Local	Long term	High	Unlikely	High	Low



Table 4: Additional impact mitigation table on different phase of the project

Phase	Impact	Mitigation Measure	Significance	
			Before Mitigation	After Mitigation
Construction	Loss of biodiversity during construction	<ul style="list-style-type: none"> • Conserve indigenous vegetation wherever possible. • Re-vegetate disturbed areas with indigenous species. 	Low	Low
	Impacts on surface and ground water resources	<ul style="list-style-type: none"> • Construction camp, facilities and material must be located away from water resources and courses. • Pollution and wastage of water must be prevented. • Hazardous materials must be handled and disposed of correctly. • Monitor construction water consumption. • Set up emergency response mechanisms in advent of pollution. • Vehicle movement must be limited to demarcated areas. 	Low	Low
	Land disturbance due to construction activities	<ul style="list-style-type: none"> • Excavation activities to be confined to the area to be developed (footprint) as per planning and should be done to achieve desired outcome. • Limit activities to disturbed areas. • There must be no other land excavation, besides those stipulated for construction purposes. • Ensure that the site is cleaned and that rehabilitation of affected areas is undertaken. 	Medium	Low
	Impact on topsoil and soil erosion	<ul style="list-style-type: none"> • Vegetation removal must be limited to construction sites only. • Pollution and loss of topsoil must be prevented. • Topsoil must be removed prior to construction must be stockpiled and protected for later use. • All alien invasive plant should be removed to prevent further invasion. 	Low	Low



		<ul style="list-style-type: none"> • Avoid translocating stockpiles of topsoil from one place to another in order to avoid translocating soil seed banks of alien species. • No stockpiling of any materials may take place within or directly adjacent to any of the river system south of the site. 		
	Generation of dust	<ul style="list-style-type: none"> • Use dust-suppressing agents. • Limit vehicle speed. • Avoid dust generating activities during strong winds. 	Low	Low
	Noise pollution and vibrations generated by construction equipment	<ul style="list-style-type: none"> • Construction activities recommended to operate Mon – Friday 8hrs per day. No work is to be done on Sundays and public holidays. • All equipment must be in good working order and must be serviced regularly. 	Low	Low
	Spillage, stockpiles and other construction related activities	<ul style="list-style-type: none"> • Construction camp and stockpiling is to be confined within the existing construction camp and storage area. • Concrete mixing should be done on an area previously disturbed/less sensitive. Alternatively, maintain one mixing site and transport the concrete to the construction site. • Any concrete, fuel or chemical spillage must be contained and cleaned immediately. • All construction material must be sourced off-site from commercial sources. 	Medium	Low
	Heritage sites	<ul style="list-style-type: none"> • An archaeologist must be consulted and relevant applications be done if any heritage or signs of heritage sites are encountered during any phase of the development. 	Low	Low
Additional	Waste management	<ul style="list-style-type: none"> • Ensure that waste management on site is properly conducted at all times. 	Medium	Low
	Water and soil	<ul style="list-style-type: none"> • Prevent pollution, wastage and loss of these resources. • A 32m buffer needs to be maintained to protect the wetland from further disturbance during the construction phase 	High	Low



		<ul style="list-style-type: none">• Consideration of the General Water-Use License Application for the project.		
	Socio-economic impact	<ul style="list-style-type: none">• No mitigation measures required, as the proposed project is likely to have a positive direct and indirect socio-economic impact, with an increase in the number of people employed during construction.	N/A	N/A



12.4. Gaps in knowledge or assumption made in the assessment

The information in this report is sufficient for the purposes of providing the department with sufficient information to make an informed decision to grant approval or not. The nature of an impact study is always based on predicting the impacts of a proposed activity / development based on knowledge that can be substantiated and where there are gaps in knowledge, there are uncertainties and assumptions are also made. There are no gaps in knowledge in this impact study.

12.5. Significance

Based on the outcome of the significance scoring noted in Table 2, the overall significance impact without mitigation, is considered to be MEDIUM, with mitigation the overall significance impact is considered to be LOW. As such, it is the recommendation of the EAP that the preferred site and the preferred technology should be adopted.

12.6. A reasoned opinion as to whether the activity should or should not be authorized

The basic assessment indicates that the proposed development will not result in unacceptable cumulative impacts. Furthermore, no undesirable or unmanageable environmental impacts were identified which suggest that the activity and the site alternatives are undesirable/unsuitable and/or pose a risk to the local environment or resident people.

13. RECOMMENDATIONS BY THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

The envisaged negative impact would not outweigh the positive impact provided that the proposed recommendations are properly implemented. The need and desirability for the township development is of high priority for the affected parties. The responsibility rest with the Department of Economic Development Tourism and Environmental Affairs (EDTEA) who are presiding over this application and the Alfred Duma Local Municipality who is the applicant. The EAP is of the view that Environmental Authorization should be granted on certain conditions which would be outline (d on this section. After an Authorization has been granted, it is the applicant's responsibility(Municipality's) to ensure that all recommendation outline in this report as well as on the EMPr are properly implemented.

14. ENVIRONMENTAL IMPACT STATEMENT

The assessment exercise concludes that the site can be used for the proposed township development, with the necessary mitigation measures in place, and provided the management recommendations outlined in this report are implemented. An environmental impact statement table presents key findings and a comparative assessment of positive and negative implications of the proposed activity as well as alternatives and relevant mitigation measures where appropriate.



15. REFERENCES

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