

BASIC ASSESSMENT REPORT

In terms of Section 24 and 24(D) of NEMA (Act No. 107 of 1998)

for:

ENVIRONMENTAL IMPACT ASSESSMENT FOR THE PROPOSED CLEARANCE OF 5,0534 HECTARES OF INDIGENOUS VEGETATION (OF WHICH 31 292 M2 IS LOCATED WITHIN A CBA) IN ORDER TO ESTABLISH A TOWNSHIP CONSISTING OF 88 “RESIDENTIAL 3” ERVEN AND STREETS LOCATED ON THE REMAINING EXTENT OF ERF 175 AND A PORTION OF ERF 174, STEWARTSTOWN, IXOPO, UBUHLEBEZWE LOCAL MUNICIPALITY, KWAZULU-NATAL PROVINCE.

Report Date: March 2023



Compiled by:

AB ENVIRO-CONSULT CC

7 Louis Leipoldt Street

Potchefstroom

2531

Tel: + 27 (83) 5488 105

Fax: + 27 (18) 293 0671

E-mail: JP@abenviro.co.za



Compiled for:

Ubuhlebezwe Local Municipality




CONDITIONS OF USE

Although **AB Enviro Consult CC** exercises due care and diligence in rendering services and preparing documents, **AB Enviro Consult CC** accepts no liability, and the client, by receiving this document, indemnifies **AB Enviro Consult CC** and its directors, managers, agents and employees against all actions, claims, demands, losses, liabilities, costs, damages, and expenses rising from or in connection with services rendered, directly or indirectly by **AB Enviro Consult CC** and by the use of the information contained in this document.

This document contains confidential and proprietary information of **AB Enviro Consult CC** and is protected by copyright in favour of **AB Enviro Consult CC** and may not be reproduced, or used without the written consent of **AB Enviro Consult CC**, which has been obtained beforehand. This document is prepared exclusively for **Ubhlebezwe Local Municipality** and is subjected to all confidentiality, copyright and trade secrets, rules, intellectual property law and practices of South Africa.

This document is provided for sole use by the Client and is confidential to it and its professional advisers. No responsibility whatsoever for the contents of this Document will be accepted to any person other than the Clients. Any use which a third party makes of this Document, or any reliance on or decisions to be made based on it, is the responsibility of such third parties. **AB Enviro Consult CC** accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this Document. Without prejudice.

Report type	Draft Basic Assessment Report		
Project Title	<i>Environmental Impact assessment for the proposed clearance of 5,0534 hectares of indigenous vegetation (of which 31 292 m² is located within a CBA) in order to establish a Township consisting of 88 "Residential 3" Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.</i>		
Competent Authority:	Department of Economic Development, Tourism & Environmental Affairs, KwaZulu-Natal		
Reference Number:	Not issued yet		
Assigned Officer	Ms Nompilo Dlamini		
Project applicant:	Ubuhlebezwe Local Municipality		
Contact person:	Mr. G.M. Sineke		
Postal address:	P.O.Box 132, Ixopo		
Postal code:	3276	Cell:	N/A
Telephone:	(039) 834 7700	Fax:	N/A
E-mail:	mm@ubuhlebezwe.org.za		
Environmental Assessment Practitioner (EAP):	Mr. JP de Villiers of AB Enviro consult cc		
Contact person:	Mr. JP de Villiers		
Postal address:	7 Louis Leipoldt Street		
Postal code:	2531	Cell:	083 5488 105
Telephone:	071 202 4027	Fax:	018 293 0671
E-mail:	jp@abenviro.co.za		
Professional affiliation(s) (if any)	EAP-EAPASA (2019-808)		

Report compiled by: Mr J. P. de Villiers

Signature:
Report reviewed by: Mrs Hannie du Plooy
Signature: <i>JE du Plooy</i>

EXECUTIVE SUMMARY

Ubuhlebezwe Local Municipality has appointed **AB Enviro Consult CC**, an independent environmental consultancy, to undertake an Environmental Impact Assessment for the proposed clearance of 5,0534 hectares of indigenous vegetation (of which 31 292 m² is located within a CBA) in order to establish a Township consisting of 88 “Residential 3” Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.

Ubuhlebezwe Local Municipality (KZ5a5) is a Category B municipality located within the Harry Gwala District Municipality (DC43). The main administrative centre of the Municipality is the town of Ixopo, which is located approximately 85km south east of Pietermaritzburg, capital of KwaZulu-Natal, and is strategically located at the intersection of four major provincial routes leading to Pietermaritzburg, the Drakensberg, the Eastern Cape and the South Coast. The town of Ixopo forms the primary development node of the Municipality and has also been selected as the seat of the Harry Gwala District Council. The importance of Ixopo cannot be underestimated in the socio-economic development of the area as a whole. Ixopo plays an important role in terms of the possible location for industry, commerce and other economic activity. It is a major education and health centre and assists in the diffusion of new ideas and technologies to the rural areas. It is also the primary base for the operation of many departments and service providers.

Ubuhlebezwe faces housing challenges in both the rural and urban settings of the municipality. The urban setting involves the growing of informal settlement challenges coupled with the rectification issues dealing with past housing developmental quality standards. There are also issues around the limited availability of renting spaces to house the forever growing working-class resulting in more expensive backyard renting as the main option available. The rural context largely includes robust growth of settlement patterns as well as the rural human shelter made of informal structures which are not applicable to the general housing standards.

Multiple housing projects are underway and future housing projects have been planned for the municipality with a total housing provision of 12 609 units including the integrated residential development program, upgrading of informal settlements, housing assistance in emergency circumstances, community residential units programme and individual subsidy program.

Development within or adjacent to the towns of Ixopo and UMzimkhulu have substantially been adversely impacted due to the lack of well-located land and the large backlog in providing the required bulk and connector services to support such initiatives. These issues have resulted in a backlog in housing provision in the municipality with rising slums and poor housing conditions. As such there is a definite need for housing provision in Ubuhlebezwe.

Ixopo has been identified for significant residential development which could reduce the backlog of housing provision in the municipality and improve the living condition and quality of life of residents. Ixopo is a well-located town and has been identified as a primary node for infrastructural and services expansion (including housing), a provincial priority corridor (linking internal and external nodes) and a regional connector (playing a fundamental role in connecting this municipality with other neighbouring municipalities). This places Ixopo as a prime town for residential development.

The layout plan make provision for 88 “Residential 3” erven, with an average stand size of 492m². These properties are aimed at providing affordable and bonded housing units and can also include GAP housing (finance linked individual subsidies – FLISP).

Housing the poor was an ingredient of the Department of Human Settlement’s three-part response to the State’s Vision 2030 Strategy. “Gap housing” is a term that describes the shortfall or gap in the market between units supplied by the State and

houses delivered by the private sector. The gap housing market comprises people who typically earn between R3500 and R15000 per month, which is too little to enable them to participate in the private property market, yet too much for state assistance. Gap housing is a policy that addresses the housing aspirations of people such as nurses, fire-fighters, teachers, SAPS members and member of the armed forces who earn between R3500 and R15000 per month and therefore do not qualify for RDP houses and do not earn enough to obtain home loans.

One of the subsidy programmes further available from the Department of Human Settlements includes the Finance Linked Individual Subsidy Programme (FLISP).

FLISP was developed to enable first time home-ownership to households in the “affordable or gap” market, that is, people earning between R3501 and R15000 per month. Individuals in these salary bands generally find it hard to qualify for housing finance; their income is regarded as low for mortgage finance, but too high to qualify for the government subsidy scheme available to households earning less than R3500 per month. Depending on the applicant’s gross monthly income, their once-off FLISP subsidy qualifying amount may vary between R20 000 and R87 000, as defined in the FLISP Subsidy Quantum. Any residential property acquired with the FLISP subsidy may not exceed the R300 000 price margin. FLISP assists qualifying beneficiaries who wish to obtain mortgage finance from a lender to:

- Acquire ownership of an existing residential property
- Obtain vacant serviced residential stands which are linked to house building contracts with the home builders registered with the National Home Builders Registration Council (NHBRC); or
- Build a new house with the assistance of a home builder registered with the National Home Builders Registration Council (NHBRC) on serviced residential stand that is already owned by the beneficiary

The objective of the programme is to reduce the initial mortgage loan amount to render the monthly loan repayment instalments affordable over the loan payment term.

The proposed layout also makes provision for four erven to be zoned as “Passive Open Space”: These properties coincide with the areas not suitable for development due to

- Building line restrictions alongside the R56 road running along the northern boundary of the application site
- A water pipeline servitude along the south-eastern boundary of the proposed development and through portions of the western part of the development, as indicated on the layout plan

The activity is listed in terms of the Regulations (in force since 4 December 2014) in terms of Section 24(M) and 44 made under section 24(5) of the National Environmental Management Act (NEMA) 1998 (Act 107 of 1998) as amended and published in Government Notice No. R 326 of 2017. The proposed development triggers the following regulations and listed activities:

Number and date of the relevant notice:	Activity No (s) and Activity Description (in terms of the relevant notice)	Description of listed activity as per project description	Time for construction to be completed applied for.
Activity 27 of GN 327	<i>“The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such</i>	The clearance of 5,0534 hectares of indigenous vegetation in order to establish a Township consisting of 88 “Residential 3” Erven and streets located on the Remaining Extent of	10 years

	<p>clearance of indigenous vegetation is required for—</p> <p>(i) the undertaking of a linear activity; or</p> <p>(ii) maintenance purposes undertaken in accordance with a maintenance management plan.”</p>	<p>Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.</p>	
<p>Activity 4 d. viii. of GN 324</p>	<p>“The development of a road wider than 4 metres with a reserve less than 13,5 metres.</p> <p>d. KwaZulu-Natal</p> <p>viii. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;”</p>	<p>The development of 718 meters of 10 meter wide roads and 444 meters of 13 meter wide roads within a critical biodiversity area as defined in the KZN CBA irreplaceable version 2016 South African parent farm cadaster World Street Map streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.</p>	<p>10 years</p>
<p>Activity 12 d. v. of GN 324</p>	<p>“The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>d. KwaZulu-Natal</p> <p>v. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;”</p>	<p>The clearance of 31 292 m² of indigenous vegetation located within a CBA (KZN CBA Irreplaceable version 2016) in order to establish a Township consisting of 88 “Residential 3” Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.</p>	<p>10 years</p>

During the construction phase, temporary employment will be created. The increased employment in the area during the construction phase will also result in increased expenditure, which, in addition, will mean that more than just the proposed jobs required for the construction on the site will be created due to economic spin-offs that will result.

The identification, description, evaluation and comparison of alternatives are important for ensuring a sound environmental scoping process.

The identification, description, evaluation and comparison of alternatives are important for ensuring a sound environmental scoping process.

The alternatives considered for the proposed development includes:

Preferred Alternative: “Establishment of a Township consisting of 88 “Residential 3” Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province. Refer to Figure 2 for a copy of the Proposed Layout Plan.”

This is the preferred alternative at this stage as funding for Alternative 1 is not available at this stage.

Alternative 1: Establishment of a Township located on the Remaining Extent of Erf 175, a Portion of Erf 174 and Erf 2281 Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.

The total site is about 30.543 hectares. The proposed development will comprise of an affordable/GAP housing, subsidised housing and business development (OR Tambo precinct), subject to Council approval. The detailed design of OR Tambo precinct internal layout will only be finalised at a later stage when the proposed development’s township rights have been approved, the general layout plans will be circulated to the various departments of the Local Authority. This integrated mixed-use development consists of approximately 136 stands of affordable housing units with stand sizes between 350m² and 400m², approximately 680 stands with an average size of 250m² (including social amenities) and a business node on 1.04ha.”

The only other alternative that exists for the proposed development is the “no-go” option which will imply that the status quo will prevail. This is unacceptable as Informal settlements consist of non-conventional housing built without complying with legal building procedures. Broadly, these crude dwellings mostly lack proper indoor infrastructure, such as water supply, sanitation, drainage, waste disposal and proper road access. There is also a bond between poor housing and environmental conditions in informal settlements which also reflects poverty. Linking basic services such as water to health is viewed as a false separation as these services are ‘intimately related to housing’. It becomes a housing issue if children playing outside the house contract diarrhoea via ingesting pathogens from faecal matter which contaminates the land on which they play. Otherwise, it is the house which provides for shelter against injury, weather and disease. Improving the surroundings of the house is to limit severe health risks existing within poor quality housing.

In addition to the above mentioned, other land parcels will have to be sourced to provide for this need within the community. This will imply that the development will not take place and will result in urban sprawl.

Specialist studies were conducted and a full Public Participation Process is being followed. This information was used to generate a sensitivity map that was used to assess the sustainability of the design and layout plan for the proposed development.

A **Geo-Technical Engineer** has been appointed to conduct a Geo-Technical investigation to determine the impact of the Geology of the area on the development. Please note that this Report was compiled for Alternative 1, therefore there is a

discrepancy in the area of development (Indicated as “approximately 30 hectares” and includes “Erf 2281, Ixopo”). The study area does however fall within this assessed area.

Please also note that the author of the Geotechnical Report has passed away as a result of COVID 19. It was indicated by EDTEA during the Pre-Application meeting that his report must be reviewed as it was older than two years. Mr C. J. Viljoen from Viljoen and associates has reviewed the Report and has concluded that:

- Herewith confirmation *Geotechnical Report 2019 GS201906X* was reviewed.
- The content as presented by the time of the review (*September 2022*) was in order.

The **Civil Engineer** found that sufficient Bulk water and sewer reticulation capacity is available within close proximity to the development.

The **Fauna and Flora Habitat** study conducted revealed that no Threatened or Near Threatened plant or animal species appear to be resident at the site. No other plant or animal species of particular conservation concern appear to be present at the site. According to the Specialist, extensive covers of alien invasive plant species are conspicuous at the site. Vegetation is transformed at parts of the site, owing to residences, and at other parts, modified or degraded

The **SAHRA Specialist** found no sites, features or material of cultural heritage (archaeological and/or historical) origin or significance were identified in the study area during the physical assessment.

Consistent with national priorities, environmental authorities must support *"increased economic growth and promote social inclusion"*, whilst ensuring that such growth is *"ecologically sustainable"*. In the National Spatial Development Perspective (NSDP) it is highlighted that, to achieve the goal of stimulating sustainable economic activities and to create long-term employment opportunities, it is required that spending on economic infrastructure is focused in priority areas with potential for economic development, with development to serve the broader societies' needs equitably

The purpose of the study is therefore to determine the impacts that the environment may have on the proposed activity, as well as the possible impacts that the activity may have on the environment.

The study is being conducted according to normal scientific practices. A theoretical background review was compiled for the different variables by using available information from the literature. Field verification was undertaken and visits paid to the site to gather further information and/or to verify information. It also includes the identification of *key interest groups*, both governmental and non-governmental, and to establish good lines of communication. Specialist studies were undertaken to determine the impacts on sensitive areas and to determine whether the proposed project can be sustainably implemented. The specialists will also advise on mitigation measures where applicable.

Table of Contents

CONDITIONS OF USE	1
EXECUTIVE SUMMARY	3
1. INTRODUCTION	10
1.1 THE BASIC ASSESSMENT PROCESS.....	10
1.2 DESCRIPTION OF THE PROCESS FOLLOWED	11
1.3 ASSESSMENT PHASE.....	14
2. DETAILS AND EXPERTISE OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER.....	19
3. DESCRIPTION OF THE ACTIVITY	21
4. DESCRIPTION OF THE PROPERTY.....	32
5. LEGAL AND OTHER REQUIREMENTS.....	41
6. NEED AND DESIRIBILITY.....	54
7. ALTERNATIVES	56
8. DESCRIPTION OF THE ENVIRONMENT THAT MAY BE AFFECTED BY THE PROJECT	59
8.1 BIO-PHYSICAL ASPECTS.....	59
8.1.1 GEOLOGY, TOPOGRAPHY AND SOIL	59
8.1.2 CLIMATE	60
8.1.3 SURFACE DRAINAGE	68
8.1.4 GROUND WATER	69
8.2. SOCIO ECONOMIC FACTORS	82
8.2.1. SOCIAL AMENITIES	82
9. ENVIRONMENTAL IMPACT ASSESSMENT	88
10. PUBLIC PARTICIPATION.	105
10.1 ADVERTISEMENT AND NOTICE	105
10.2 DETERMINATION OF APPROPRIATE MEASURES	107
10.3 AUTHORITY PARTICIPATION	109
10.4 ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES	120
10.5 COMMENTS AND RESPONSE REPORT	120
11. SUMMARY OF THE FINDINGS AND RECOMMENDATIONS OF SPECIALISTS.....	121
11.2 ENGINEERING SERVICES REPORT (See Appendix B for a copy of the report).....	126
11.3 FAUNA AND FLORA HABITAT REPORT (See Appendix C for a copy of the Report.).....	130
11.4 HERITAGE IMPACT ASSESSMENT (HIA) See Appendix D	132
11.4.1 TERMS OF REFERENCE.....	132
12. CONCLUSIONS AND RECOMMENDATIONS.....	135

12.2 ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR).....	138
12.3 EAP OPINION	138
12.4 CONDITIONS RECOMMENDED TO BE INCLUDED IN ANY AUTHORISATION THAT MAY BE GRANTED BY THE COMPETENT AUTHORITY IN RESPECT OF THE APPLICATION	139
13. AFFIRMATION BY EAP.....	141
14. LIST OF REFERENCES.....	142

1. INTRODUCTION

Ubuhlebezwe Local Municipality has appointed **AB Enviro Consult CC**, an independent environmental consultancy, to undertake an Environmental Impact Assessment for the proposed clearance of 5,0534 hectares of indigenous vegetation (of which 31 292 m² is located within a CBA) in order to establish a Township consisting of 88 “Residential 3” Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.

Ubuhlebezwe Local Municipality (KZ5a5) is a Category B municipality located within the Harry Gwala District Municipality (DC43). The main administrative centre of the Municipality is the town of Ixopo, which is located approximately 85km south east of Pietermaritzburg, capital of KwaZulu-Natal, and is strategically located at the intersection of four major provincial routes leading to Pietermaritzburg, the Drakensberg, the Eastern Cape and the South Coast. The town of Ixopo forms the primary development node of the Municipality and has also been selected as the seat of the Harry Gwala District Council. The importance of Ixopo cannot be underestimated in the socio-economic development of the area as a whole. Ixopo plays an important role in terms of the possible location for industry, commerce and other economic activity. It is a major education and health centre and assists in the diffusion of new ideas and technologies to the rural areas. It is also the primary base for the operation of many departments and service providers

Ubuhlebezwe faces housing challenges in both the rural and urban settings of the municipality. The urban setting involves the growing of informal settlement challenges coupled with the rectification issues dealing with past housing developmental quality standards. There are also issues around the limited availability of renting spaces to house the forever growing working-class resulting in more expensive backyard renting as the main option available. The rural context largely includes robust growth of settlement patterns as well as the rural human shelter made of informal structures which are not applicable to the general housing standards.

Multiple housing projects are underway and future housing projects have been planned for the municipality with a total housing provision of 12 609 units including the integrated residential development program, upgrading of informal settlements, housing assistance in emergency circumstances, community residential units programme and individual subsidy program.

Development within or adjacent to the towns of Ixopo and UMzimkhulu have substantially been adversely impacted due to the lack of well-located land and the large backlog in providing the required bulk and connector services to support such initiatives. These issues have resulted in a backlog in housing provision in the municipality with rising slums and poor housing conditions. As such there is a definite need for housing provision in Ubuhlebezwe.

Ixopo has been identified for significant residential development which could reduce the backlog of housing provision in the municipality and improve the living condition and quality of life of residents. Ixopo is a well-located town and has been identified as a primary node for infrastructural and services expansion (including housing), a provincial priority corridor (linking internal and external nodes) and a regional connector (playing a fundamental role in connecting this municipality with other neighbouring municipalities). This places Ixopo as a prime town for residential development.

1.1 THE BASIC ASSESSMENT PROCESS

The purpose of this document is to adhere to the requirements for compilation of Basic Assessment Reports as amended and published in Government Notice R. 326 of 7 April 2017, Appendix 1, and the National Environmental Management Act (Act 107 of 1998) (NEMA).

1.2 DESCRIPTION OF THE PROCESS FOLLOWED

In order to assess a proposed development it is important to take into consideration the principles of NEMA. These principles are outlined in Chapter 1 and read as follows:

- 1) *“The principles set out in this section apply throughout the Republic to the actions of all organs of state that may significantly affect the environment and—*
 - a. *shall apply alongside all other appropriate and relevant considerations, including the State’s responsibility to respect, protect, promote and fulfil the social and economic rights in Chapter 2 of the Constitution and in particular the basic needs of categories of persons disadvantaged by unfair discrimination;*
 - b. *serve as the general framework within which environmental management and implementation plans must be formulated;*
 - c. *serve as guidelines by reference to which any organ of state must exercise any function when taking any decision in terms of this Act or any statutory provision concerning the protection of the environment;*
 - d. *serve as principles by reference to which a conciliator appointed under this Act must make recommendations; and*
 - e. *guide the interpretation administration and implementation of this Act, and any other law concerned with the protection or management of the environment.*
- 2) *Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.*
- 3) *Development must be socially, environmentally and economically sustainable.*
- 4) (a) *Sustainable development requires the consideration of all relevant factors including the following:*
 - (i) *That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied:*
 - (ii) *that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;*
 - (iii) *that the disturbance of landscapes and sites that constitute the nation’s cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;*
 - (iv) *that waste is avoided. or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner;*
 - (v) *that the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource;*
 - (vi) *that the development use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised;*
 - (vii) *that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and*

- (viii) *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.*
- (b) *Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option.*
- (c) *Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons.*
- (d) *Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being must be pursued and special measures may be taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination.*
- (e) *Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.*
- (f) *The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation and participation by vulnerable and disadvantaged persons must be ensured.*
- (g) *Decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognizing all forms of knowledge, including traditional and ordinary knowledge.*
- (h) *Community wellbeing and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.*
- (i) *The social, economic and environmental impacts of activities, including disadvantages and benefits must be considered, assessed and evaluated and decisions must be appropriate in the light of such consideration and assessment.*
- (j) *The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.*
- (k) *Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.*
- (l) *There must be intergovernmental co-ordination and harmonisation of policies, legislation and actions relating to the environment.*
- (m) *Actual or potential conflicts of interest between organs of state should be resolved through conflict resolution procedures.*
- (n) *Global and international responsibilities relating to the environment must be discharged in the national interest.*

- (o) *The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.*
- (p) *The costs of remedying pollution, environmental degradation consequent adverse health effects and of preventing, controlling or minimizing further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.*
- (q) *The vital role of women and youth in environmental management and development must be recognised and their full participation therein must be promoted.*
- (r) *Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure."*

The above mentioned principals and the applicable legislation, Policies and Guidelines as described in Paragraph 5 of this Report were taken into account in the assessment of the Environmental Impacts for the proposed development. The process followed can be described as follows:

- 1) The EAP was contracted by Ubuhlebezwe Local Municipality as their Independent Environmental Assessment Practitioner.
- 2) A Geo-Technical Engineer has conducted a Geo-Technical investigation to determine the impact of the Geology of the area on the development.
- 3) A Civil Engineer has designed the Bulk Services to ensure a sustainable development. The Engineer has also designed a storm water management plan.
- 4) A SAHRA Specialist has been appointed to determine the possible impact of the development on Archaeological and Cultural features.
- 5) A Fauna and Flora Habitat specialist has been appointed to determine the impact of the proposed development on the Fauna and Flora of the area.
- 6) An Environmental Screening Process was conducted by the EAP to ensure that all the relevant Environmental Legislation is taken into consideration.
- 7) Desk top studies were conducted and alternatives assessed.
- 8) Site inspections were carried out to verify the outcomes of the desktop studies, and the preferred alternative defined.
- 9) A full Public Participation Process is being followed to obtain inputs from interested and affected parties.
- 10) All the information obtained from the above mentioned processes is being used to assess the Environmental Impact that the proposed development may have on the Environment and vice versa.
- 11) The inputs from Specialists, interested and affected parties, together with the knowledge of the EAP is being used to determine measures to avoid, mitigate and manage potential impacts. These measures are described in the Environmental Management Programme.

1.3 ASSESSMENT PHASE

The assessment phase included the necessary investigations to assess the suitability of the identified site and its surrounding environment, for the development proposal. The assessment phase described the “status quo” of the bio-physical, social, economic and cultural environment, and identifies the anticipated environmental aspects associated with the proposed development. The assessment phase included the identification of *key interest groups*, (both government and non-government), and strived to establish efficient and effective communication. Identifying and informing Interested and affected parties of the proposed development may have an impact on the focus of the EIA. (S. Cliff, 2015).

This phase also determines the *significance of the impact* of the proposed activity on the surrounding Environment. During this phase, a Basic Assessment Report (BAR) is compiled, and, following public review, is submitted to the approving authority – the KZN EDTEA.

The purpose of the Basic Assessment Report is to document the outcome of the Assessment Phase of the project. The report fulfilled the requirements of the EIA Regulations (2014) for the documentation of the Basic Assessment Process. The Report was compiled in accordance with Section 21(3) of NEMA’s 2014 EIA Regulation (GN R. 982) as amended and published in Government Notice R. 326 of 7 April 2017.

The Draft Basic Assessment Report will be submitted to KZN EDTEA as soon as the acknowledgement for the project is received.

1.3.1 Objective of the basic assessment process

The objective of the basic assessment process is to, through a consultative process-

- (a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;
- (b) identify the alternatives considered, including the activity, location, and technology alternatives;
- (c) describe the need and desirability of the proposed alternatives;
- (d) through the undertaking of an impact and risk assessment process, inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine–
 - (i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
 - (ii) the degree to which these impacts–
 - (aa) can be reversed;
 - (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;

- (cc) can be avoided, managed or mitigated; and
- (e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to–
 - (i) identify and motivate a preferred site, activity and technology alternative;
 - (ii) identify suitable measures to avoid, manage or mitigate identified impacts; and
 - (iii) identify residual risks that need to be managed and monitored.

1.3.2 Scope of assessment and content of basic assessment reports

The BAR assesses those identified potential environmental impacts and benefits (direct, indirect and cumulative impacts) associated with the project design, construction, and operation phases, and recommends appropriate mitigation measures for potentially significant environmental impacts. The 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.

The BAR addresses potential environmental impacts and benefits associated with all phases of the project, including design, construction and operation, and aims to provide the environmental authorities with sufficient information to make an informed decision regarding the proposed project.

Table 1 below provides a summary of the legislative requirements in terms of a Basic Assessment Report as stipulated in Section 23 of the 2014 EIA Regulation (GN R. 982) as amended and published in Government Notice R. 326 of 7 April 2017. Cross-references are provided in terms of the relevant section within this BA Report where the NEMA and BA Report requirements have been addressed.

Table 1: Basic Assessment Report content as per Section 23 of NEMA’s 2014 EIA Regulation (GN R. 982) as amended and published in Government Notice R. 326 of 7 April 2017 Appendix 1.

3. (1) A basic assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include:

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Basic Assessment Reports	Location in this report
Appendix 1, section 3 (a)	Details of the EAP who prepared the report; and the expertise of the EAP, including a curriculum vitae;	Paragraph 2
Appendix 3, section 3 (b)	The location of the development footprint of the activity on the approved site as contemplated in the accepted scoping report, including – <ul style="list-style-type: none"> (i) The 21 digit Surveyor General code of each cadastral land parcel; (ii) Where available, the physical address and farm name; (iii) Where the required information in items (i) and (ii) is not available, coordinates of the boundary of the property or properties 	Paragraph 4 Paragraph 4 Paragraph 4
Appendix 1, section 3 1(c)	A plan which locates the proposed activity or activities applied for, at an appropriate scale, or, if it is – <ul style="list-style-type: none"> (i) A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) On land where the property has not been defined, the coordinates within which the activity is to be undertaken; 	Appendix A1 and Appendix A2 Paragraph 4

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Basic Assessment Reports	Location in this report
Appendix 1, section 3 (d)	A description of the scope of the proposed activity, including – (i) all listed and specified activities triggered and being applied for; and (ii) a description of the activities to be undertaken including associated structures and infrastructure;	Paragraph 3 Paragraph 3
Appendix 1, section 3 (e)	A description of the policy and legislative context within which the development is proposed including (i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and (ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments explanation of how the proposed development complies with and responds to the legislation and policy context	Paragraph 5.1 Paragraph 5.2 Paragraph 5.2
Appendix 1, section 3 (f)	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.	Paragraph 6
Appendix 1, section 3 (g)	a motivation for the preferred site, activity and technology alternative	Paragraph 4
Appendix 1, section 3 (h)	A full description of the process followed to reach the proposed preferred alternative within the site, including- (i) Details of all 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 alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; (v) The impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration, and probability of the impacts, including the degree to which the impacts- (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed, or mitigated. (vi) The methodology used in deterring and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives; (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 geographic, physical, biological, social, economic, heritage and cultural aspects; (viii) The possible mitigation measures that could be applied and level of residual risk; (ix) the outcome of the site selection matrix	Paragraph 8 Paragraph 10 Paragraph 10 Paragraph 8 Paragraph 9 Paragraph 9 Paragraph 9 Paragraph 9 Paragraph 9 Paragraph 9 Not Applicable

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Basic Assessment Reports	Location in this report
	(x) If no alternatives, including alternative footprints for the activity were investigated, the motivation for not considering such and; (xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity.	Paragraph 12
Appendix 1, section 3 (i)	A full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including- (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and (ii) 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;	Paragraph 9 Paragraph 8 Paragraph 9
Appendix 1, section 3 (j)	An assessment of each identified potentially significant impact and risk, including- (i) cumulative impacts; (ii) the nature, significance and consequences of the impact and risk; (iii) the extent and duration of the impact and risk; (iv) the probability of the impact and risk occurring; (v) the degree to which the impact and risk can be reversed; (vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and (vii) the degree to which the impact and risk can be mitigated;	Paragraph 9 Paragraph 9 Paragraph 9 Paragraph 9 Paragraph 9 Paragraph 9
Appendix 1, section 3 (k)	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;	Paragraph 11
Appendix 1, section 3 (l)	An environmental impact statement which contains- (i) a summary of the key findings of the environmental impact assessment: (ii) 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 (iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;	Paragraph 12.2 and 12.2 Figure 2 Paragraph 12
Appendix 1, section 3 (m)	Based on the assessment, and where applicable, recommendations from specialist reports, the recording of proposed impact management outcomes for the development for inclusion in the EMPr	Paragraph 11 and 12
Appendix 1, section 3 (n)	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	Paragraph 3.1.2.1
Appendix 1, section 3 (o)	A description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed	Paragraph 1.4.3
Appendix 1, section 3 (p)	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	Paragraph 12.4
Appendix 1, section 3 (q)	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	Not Applicable
Appendix 1, section 3 (r)	An undertaking under oath or affirmation by the EAP in relation to- (i) The correctness of the information provided in the report;	Paragraph 13

Section of the EIA Regulations, 2014	Description of EIA Regulations Requirements for Basic Assessment Reports	Location in this report
	(ii) The inclusion of the comments and inputs from stakeholders and interested and affected parties; and	Paragraph 13
	(iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and	Paragraph 13
	(iv) Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties.	Paragraph 13
Appendix 1, section 3 (s)	Where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts.	Not Applicable
Appendix 1, section 3 (t)	Any specific information that may be required by the competent authority.	Not Applicable
Appendix 1, section 3 (u)	Any other matters required in terms of section 24(4)(a) and (b) of the Act	Not Applicable

1.3.3 Assumptions, uncertainties, limitations and gaps in knowledge:

This report is based on current available information and, as a result, the following limitations and assumptions are implicit –

The report is based on the *project description* provided by the Applicant as a result of reports that was compiled by the following Specialists:

- A Geo-Technical Engineer has conducted a Geo-Technical investigation to determine the impact of the Geology of the area on the development.
- A Civil Engineer has designed the Bulk Services to ensure sustainable service delivery. The Engineer has also designed a storm water management plan
- A SAHRA Specialist has been appointed to determine the possible impact of the development on Archaeological and Cultural features.
- An Ecologist has been appointed to determine the impact of the proposed development on the Fauna and Flora of the area.
- An Environmental Screening Process was conducted by the EAP to ensure that all the relevant Environmental Legislation is taken into consideration.
- Desktop studies were conducted and alternatives assessed.

Descriptions of the biophysical and social environments are based on specialist fieldwork, investigations, and the Public Participation Process.

2. DETAILS AND EXPERTISE OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

AB Enviro Consult cc (AB Omgewingskonsultante BK) is a closed corporation that was officially founded in 2000. The owner, Prof AB de Villiers was a lecturer at the North West University and started doing Environmental Impact Assessments in 1996. Mrs JE du Plooy joined AB Enviro Consult cc in 2001 and Mr JP de Villiers in 2004.

AB Enviro Consult cc specializes in conducting **Environmental Impact Assessments (EIA's)** in terms of the National Environmental Management Act (NEMA) 1998 (Act 107 of 1998), **Waste Management Licences (WML)** in terms of the National Environmental Management: Waste Act, 2008 (Act, No. 59 of 2008) as well as **Environmental Control Officer (ECO)** duties. Over a period of 27 years (1996-2023) the consultancy has successfully applied for, and obtained Environmental Authorizations and licences for more than 400 projects. Developments include Township Establishments, Bulk Services Infrastructure (including bulk sewer and water pipelines, reservoirs as well as the construction of roads and bridges), various Agricultural developments (chicken houses, feed lots and cultivated land), waste management licences for waste water treatment plants and landfill sites. AB Enviro Consult cc is also involved in various renewable energy projects (mainly photovoltaic solar farms) and has also successfully obtained Environmental Authorization for the revitalization of the Vaalharts Irrigation Scheme, the largest irrigation scheme in the country.

Prof de Villiers holds a Doctorate degree from the University of the Free State while Mr JP de Villiers and Ms JE du Plooy both have Masters' Degrees. They are also both registered Professional Environmental Assessment Practitioners (EAP's) with EAPASA, the professional Registration body of EAP's in South Africa and are both members of IAIA SA.

As a company we strive to conduct our business in a responsible manner by upholding the principals of EAPASA's code of ethical conduct and practice. These values can be summarised as follows:

We strive to carry out our professional activities, as far as reasonable and practical, in accordance with the principles of sustainable development, and in compliance with relevant environmental legislation. We place the integrity of the environment, including conservation and long term sustainable use of the biophysical environment, and the social welfare, health and safety aspects of the socio-economic environment, above any commitment to sectional or private interests.

We advise our clients to incorporate environmental considerations from the earliest stages of policy, plan, programme or project conception or development.

We conduct our professional activities in a manner that does not involve dishonesty, fraud, deceit, misrepresentation or bias. We do not neglect or subvert good professional practice in order to secure personal gain, or attempt to injure the reputation or opportunities for employment of another Environmental Assessment Practitioner by false, biased or undocumented claims or accusations, by any other malicious action, or by offers of gifts or favours.

We strive to clearly differentiate between facts and opinions in our work. We also do our best to be informed of advances in environmental assessment practice, and to integrate such knowledge into our professional activities. We always use the best available information. Where enough relevant and reliable information cannot be obtained, this deficiency is explicitly stated in the findings or the review of the environmental assessment, in terms of any assumptions and limitations in the environmental assessment or review, the risks to the environment, levels of confidence in predictions, and implications for decision making of information deficiencies. We conduct our professional activities, as far as appropriate, in an interdisciplinary manner and

recognise the need to collaborate with suitably qualified persons in subject areas where we are relatively inexperienced or unspecialised

We take responsibility for the findings or review of our environmental assessment for which we are responsible. (It is noted that the we cannot be held responsible for decisions made by other parties, purportedly based on the findings of the environmental assessment or review.) We do not misrepresent or allow or permit misrepresentation of our own or our associates' academic or professional qualifications, or exaggerate their degree of responsibility for any work of a professional nature.

Finally we strive to conduct our work at the highest possible standard.

CURRICULUM VITAE: MR JP DE VILLIERS

➤ PREVIOUS WORK EXPERIENCE

1994 - 2004:	Manager: HJP Farms (Part-time manager HJP farms 1996 – 2003)
1999 - 2000:	Klerksdorp Technical High School Teacher – Geography and Mathematics
2001 - 2005:	Klerksdorp High School Teacher – Head of Subject: Geography Head of Department: Social Studies
2004 - 2006:	AB Enviro Consult Junior Consultant
2007 - 2010:	AB Enviro Consult Senior Consultant
2011 - 2014:	North West University Manager of NWU EIA Pro Bono Office
2011 - 2023:	AB Enviro Consult Executive Manager and Senior Consultant.

➤ EDUCATION

BA (Geography, Economics)	PU FOR CHE	1993
HED (Geography, Economics)	PU FOR CHE	1994
B.Sc. (Honns) Cum Laude (Environmental Management)	North-West University	2006
M.Sc (Geography)	North-West University	2007

➤ REGISTRATIONS

EAPASA	Registration Number 2019/808
IAIA SA Member	Membership number: 6672

➤ EXPERIENCE

JP de Villiers holds a M.Sc. in Geography from the North West University's Department of Geography and Environmental Management. He started as a junior EAP in 2004 with AB Enviro Consult and was promoted in 2007 to senior EAP. During

2011 he was appointed as the Manager of the North West University, EIA Pro-Bono Office. This office is an initiative of, and funded by, the DEA. (This was a three year contract between DEA and NWU that was extended by one year) As Manager of this office, Mr. de Villiers had the following responsibilities:

- Conduct Environmental Impact Assessments for municipalities on a pro-bono basis.
- Provide environmental management training to North West Municipalities.
- Provide environmental assistance to North West Municipalities.
- Undertake research related to Environmental Impact Management within the North West Municipal Context.
- Marketing for stakeholder 'pro-bono' expert donations.
- Marketing for corporate 'pro-bono' funding.

As EAP, Mr. de Villiers has been directly involved in obtaining **334 Environmental Authorizations** and has performed the duties of **Environmental Control Officer (ECO) for 49 developments**.

3. DESCRIPTION OF THE ACTIVITY

The proposed development will entail the clearance of 5,0534 hectares of indigenous vegetation in order to establish a Township consisting of 88 "Residential 3" Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province. Please see Figures 1a and b below for the Locality Maps and Figure 2 for a copy of the proposed layout plan.

The total development footprint as per the legend below is 7,3662 hectares. Of this, 0,9828 hectares is zoned as "Passive open space" and will not be developed. An area of 1, 33 Hectares has already been cleared by informal housing. This brings the total area of indigenous vegetation that will be removed to 5,0534 hectares. Of this area 31 292 m² is located within a CBA (KZN CBA Irreplaceable version 2016). Please see Figure 3 for a copy of the CBA Map.

The layout plan make provision for 88 "Residential 3" erven, with an average stand size of 492m². These properties are aimed at providing affordable and bonded housing units and can also include GAP housing (finance linked individual subsidies – FLISP).

Housing the poor was an ingredient of the Department of Human Settlement's three-part response to the State's Vision 2030 Strategy. "Gap housing" is a term that describes the shortfall or gap in the market between units supplied by the State and houses delivered by the private sector. The gap housing market comprises people who typically earn between R3500 and R15000 per month, which is too little to enable them to participate in the private property market, yet too much for state assistance. Gap housing is a policy that addresses the housing aspirations of people such as nurses, fire-fighters, teachers, SAPS members and member of the armed forces who earn between R3500 and R15000 per month and therefore do not qualify for RDP houses and do not earn enough to obtain home loans.

One of the subsidy programmes further available from the Department of Human Settlements includes the Finance Linked Individual Subsidy Programme (FLISP).

FLISP was developed to enable first time home-ownership to households in the "affordable or gap" market, that is, people earning between R3501 and R15000 per month. Individuals in these salary bands generally find it hard to qualify for housing

finance; their income is regarded as low for mortgage finance, but too high to qualify for the government subsidy scheme available to households earning less than R3500 per month. Depending on the applicant's gross monthly income, their once-off FLISP subsidy qualifying amount may vary between R20 000 and R87 000, as defined in the FLISP Subsidy Quantum. Any residential property acquired with the FLISP subsidy may not exceed the R300 000 price margin. FLISP assists qualifying beneficiaries who wish to obtain mortgage finance from a lender to:

- Acquire ownership of an existing residential property
- Obtain vacant serviced residential stands which are linked to house building contracts with the home builders registered with the National Home Builders Registration Council (NHBRC); or
- Build a new house with the assistance of a home builder registered with the National Home Builders Registration Council (NHBRC) on serviced residential stand that is already owned by the beneficiary

The objective of the programme is to reduce the initial mortgage loan amount to render the monthly loan repayment instalments affordable over the loan payment term.

The proposed layout also makes provision for four erven to be zoned as "Passive Open Space": These properties coincide with the areas not suitable for development due to

- Building line restrictions alongside the R56 road running along the northern boundary of the application site
- A water pipeline servitude along the south-eastern boundary of the proposed development and through portions of the western part of the development, as indicated on the attached layout plan

Ubuhlebezwe faces housing challenges in both the rural and urban settings of the municipality. The urban setting involves the growing of informal settlement challenges coupled with the rectification issues dealing with past housing developmental quality standards. There are also issues around the limited availability of renting spaces to house the forever growing working-class resulting in more expensive backyard renting as the main option available. The rural context largely includes robust growth of settlement patterns as well as the rural human shelter made of informal structures which are not applicable to the general housing standards.

Multiple housing projects are underway and future housing projects have been planned for the municipality with a total housing provision of 12 609 units including the integrated residential development program, upgrading of informal settlements, housing assistance in emergency circumstances, community residential units programme and individual subsidy program.

Development within or adjacent to the towns of Ixopo and UMzimkhulu have substantially been adversely impacted due to the lack of well-located land and the large backlog in providing the required bulk and connector services to support such initiatives. These issues have resulted in a backlog in housing provision in the municipality with rising slums and poor housing conditions. As such there is a definite need for housing provision in Ubuhlebezwe.

Ixopo has been identified for significant residential development which could reduce the backlog of housing provision in the municipality and improve the living condition and quality of life of residents. Ixopo is a well-located town and has been identified as a primary node for infrastructural and services expansion (including housing), a provincial priority corridor (linking internal and external nodes) and a regional connector (playing a fundamental role in connecting this municipality with other neighbouring municipalities). This places Ixopo as a prime town for residential development.

LEGEND					
Land Use		Number of Erven	Erf Number	Area in Ha	% of Area
Residential 3	(Finance linked individual housing subsidy) (Min. 413m ²) (Max. 707m ²)	88	*	4.3335ha	58.83%
Passive Open Space		4	*	0.9828ha	13.34%
Street				2.0499ha	27.83%
TOTAL		92	*	7.3662ha	100%
STREETS					
Reserve Width		Length in Metre		% of Street Length	
16metre		472m		28.89%	
13metre		444m		27.17%	
10metre		718m		43.94%	
TOTAL		1634m		100%	



Figure 1b: Locality Map

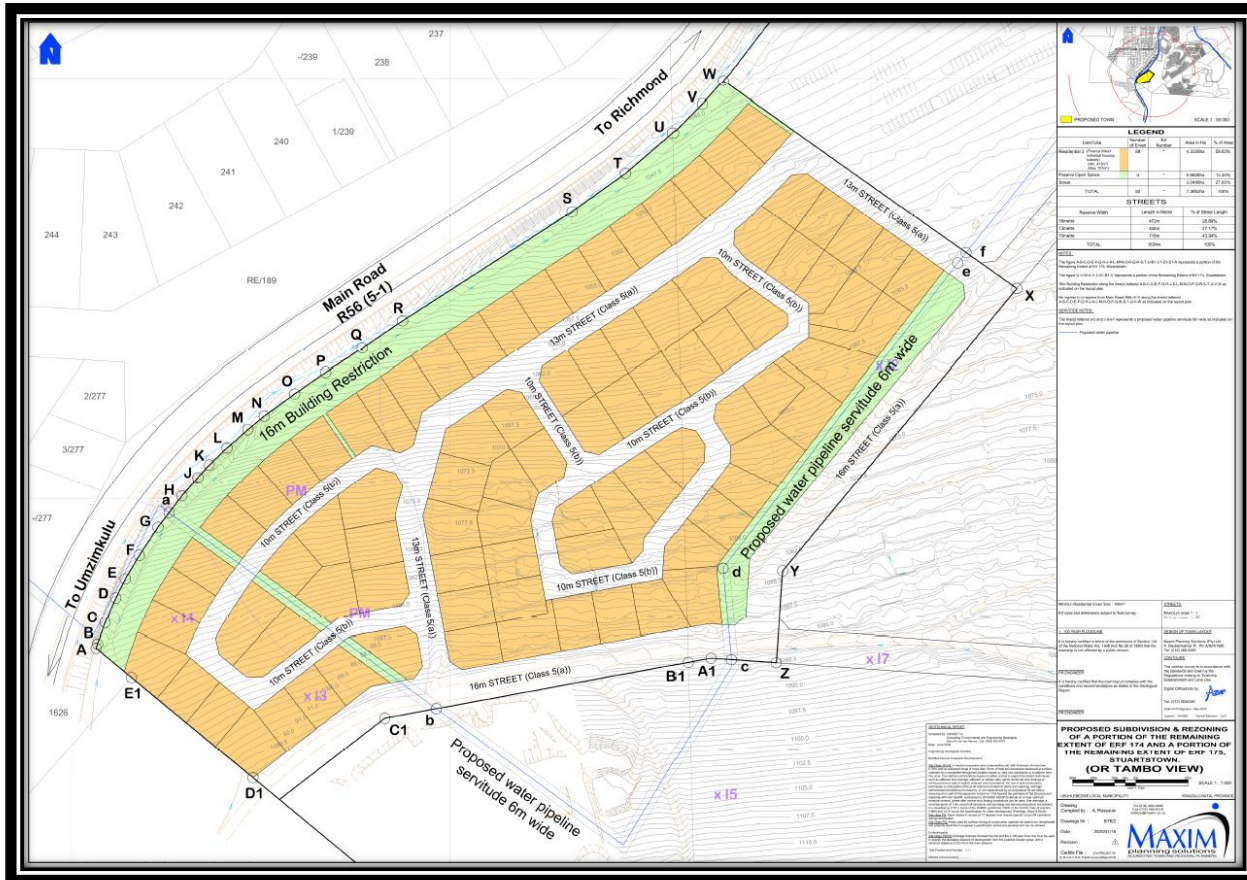


Figure 2a: Proposed layout plan



Figure 2b: Proposed layout plan (Base Map)

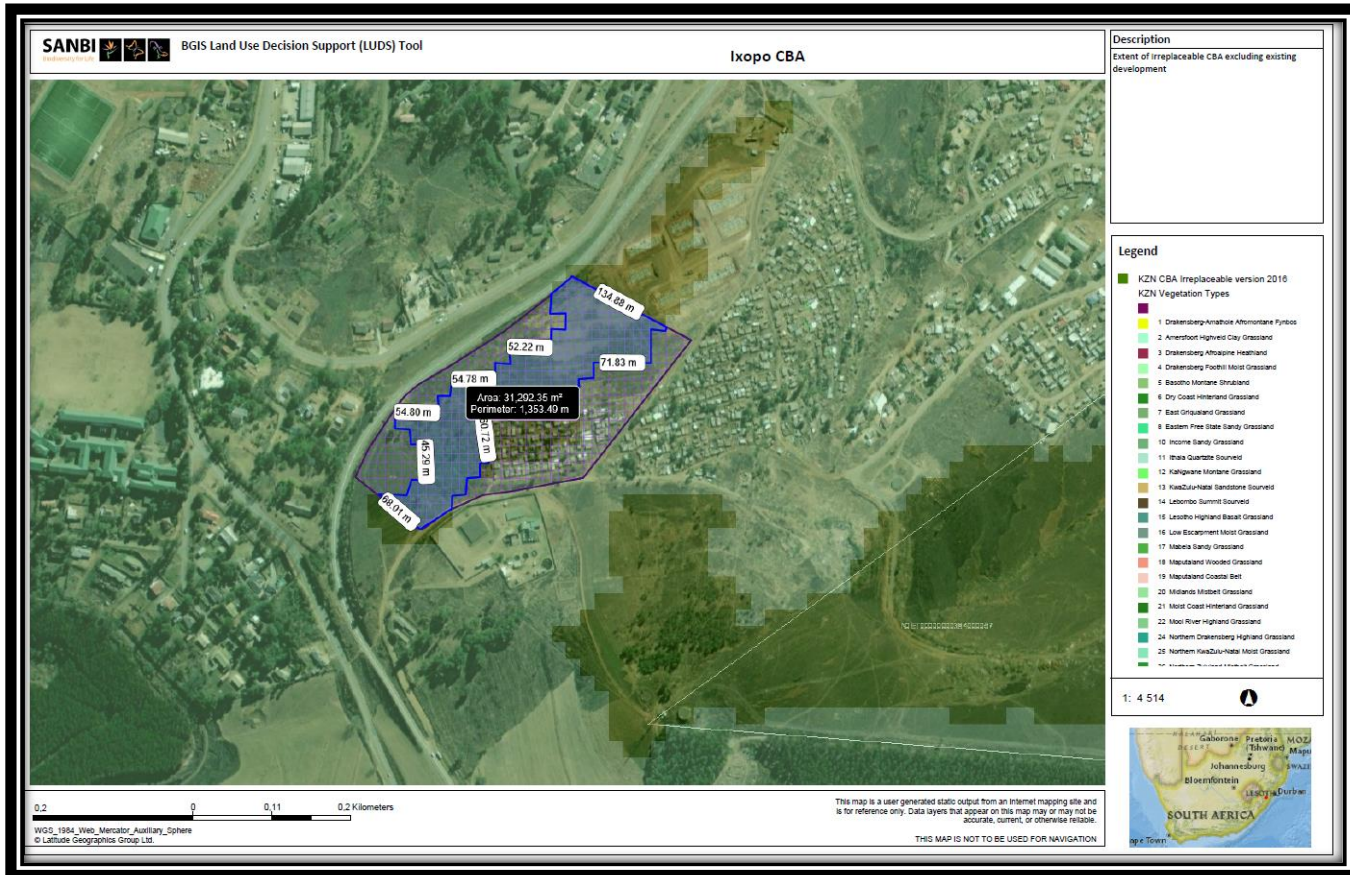


Figure 3: CBA Map

Bulk Services

Bulk Water Supply

The proposed development falls within the Umgeni Water system which is one of the largest systems within the uMkhomazi Water Resource Region. The Umgeni Water System is owned and operated by Ixopo System. Water is abstracted from the Home Farm Dam, located on the IXobho River a tributary of the UMkhomazi River, and a borehole, located on the local Ixopo Golf Course and supplied to the Ixopo Water Treatment Plant for treatment.

The proposed OR Tambo View housing development will get its raw water from Ixopo Dam, potable water from Ixopo WTP

The bulk and internal infrastructure development will be designed taking into account all regulatory requirements as well as the conventional design standards used in the civil engineering industry.

The Harry Gwala District Municipality as the Water Service Authority has confirmed the existing water services in the immediate area to the proposed development have enough capacity to service the new development. The Water Service Authority (Harry Gwala District Municipality) confirmed that they will provide the proposed OR Tambo View development with a new bulk water pipe with a pipe diameter of 160mm uPVC close to the development to supply portable water.

According to Umgeni Water's Infrastructure Master Plan Volume 3, The Ixopo Potable Water Reservoir is located at the Water Treatment Plant and acts as a balancing and service reservoir. It has a storage capacity of 2.5ML and sits at an elevation of 1001.23m ASL. Besides the above-mentioned reservoir, there is currently no water distribution networks in the proposed OR Tambo View area.

The initial and ultimate water demands for OR Tambo View Area are as follows;

- Initial water demand – 291.46 kl/day,
- Ultimate water demand – 352.13 kl/d,

A new water reticulation network of uPVC pipes with varying pipe diameters 75mm, 110mm, 160mm has been designed and will be constructed within the proposed OR Tambo View development. Please see Figure 4 below for design details.

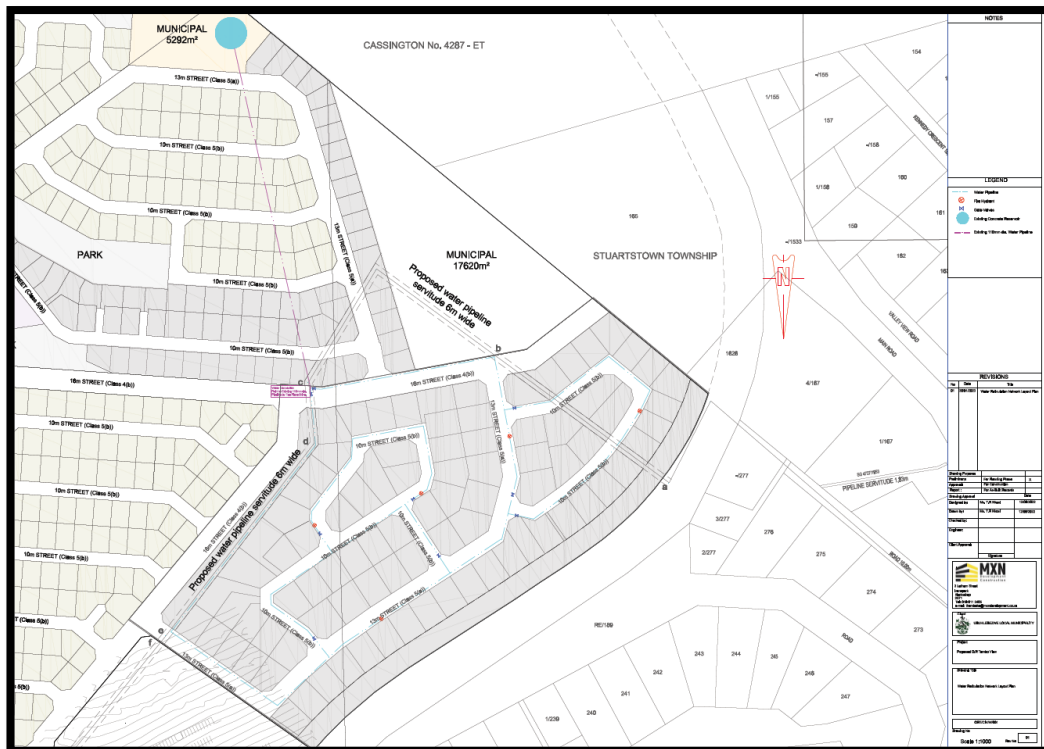


Figure 4: Internal water reticulation

Bulk Sewage

The Proposed OR Tambo View settlement falls within an area serviced by the Ixopo Wastewater Works (WWW). The Ixopo WWW is owned and operated by Umgeni Water. The Ixopo WWW operations use aeration basins for biological nutrient removal and clarifiers for the separation process. The proposed OR Tambo View will discharge its sewer into the exiting Ixopo WWW. According to Umgeni Water's Infrastructure Master Plan Volume 10, Ixopo WWW serves the town of Ixopo in the Harry Gwala District Municipality and is a Class D accredited WWW. It is located next to the R612 regional road and downstream of the Home Farm Dam, which supplies the raw water to Umgeni Water's Ixopo WTP.

According to Umgeni Water's Infrastructure Master Plan 2022 Volume 10, the maximum design capacity of Ixopo WWW is 1MI/day. Flows to the WWW have been reduced as a result of blockages in the Ixopo sewer network and non-operational pump stations. The flows dropped to <0.2MI/day. The anticipated return flows are approximately 1.3MI/day. Therefore, there is a spare capacity of 0.7MI/d. The Ixopo WWWP has sufficient capacity to meet the current waste water demand of OR Tambo View Development.

The bulk and internal infrastructure development have been designed taking into account all regulatory requirements as well as the conventional design standards used in the civil engineering industry.

The initial and ultimate wastewater demands for OR Tambo View Area are as follows;

- Initial wastewater demand – 109.638kl/day (1.27l/s),
- Ultimate wastewater demand – 132.46kl/day (1.53l/s),

Proposed Bulk Sewer Supply

The proposed OR Tambo View Development will discharge its sewer effluent into an existing bulk sewer pipeline which is connected to the existing Ixopo WWW. Umgeni Water has confirmed that there is a newly

constructed existing bulk sewer pipe with a pipe diameter of 250 mm uPVC close to the development to discharge sanitation on MH60. In the interim it should be noted however, that the diameter and depth of the sewer pipeline will be determined during detail design stage. The proposed bulk sewer pipeline will be uPVC and will cross below any watercourse should there be any, gabions mattresses, dump rock and crusher stones as bedding and blanket to protect the pipe will be utilized.

Proposed Sewer Reticulation Internal Services

A full water borne sanitation system is proposed connecting into the existing bulk/link sewer pipes. Materials used should be PVC with the minimum sizes of 160mm diameter with house connections to be 160mm diameter. Maximum manhole distances of 80m. Please see Figure 5 below.

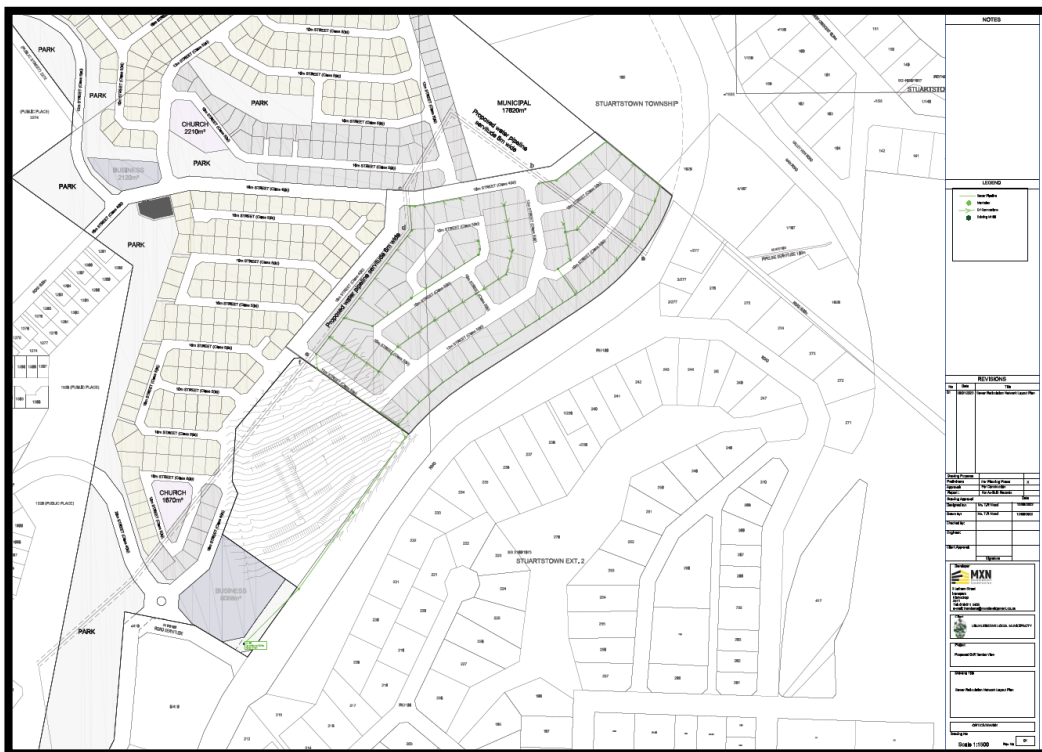


Figure 5: Internal sewer reticulation

Stormwater

A Storm water report has been compiled to address the requirements of the Uhuhlebezwe Local Municipality Regarding the provision of municipal services. The report summarized the level and extent of services required and in terms of this report focus is given to the Stormwater Management Plan.

The main objective of the Storm Water Management Plan is to:

- Minimise the threat of flooding to the area
- Protect the receiving water bodies in the area
- Preserve biodiversity in the area
- Promote the multi-functional use of stormwater management systems (provide amenity to communities)
- Promote the use of the stormwater itself as a water resource
- Develop sustainable stormwater systems

4. DESCRIPTION OF THE PROPERTY

The proposed development will be located on a Portion of the Remainder of Erf 174 and a Portion of the remaining extent of Erf 175 Stuartstown in Ixopo, which falls under the jurisdiction of the Ubuhlebezwe Local Municipality (ULM). Ubuhlebezwe Local Municipality (KZ5a5) is a Category B municipality located within the Harry Gwala District Municipality (DC43). The main administrative centre of the Municipality is the town of Ixopo, which is located approximately 85km south east of Pietermaritzburg, capital of KwaZulu-Natal, and is strategically located at the intersection of four major provincial routes leading to Pietermaritzburg, the Drakensberg, the Eastern Cape and the South Coast. The town of Ixopo forms the primary development node of the Municipality and has also been selected as the seat of the Harry Gwala District Council. The importance of Ixopo cannot be underestimated in the socio-economic development of the area as a whole. Ixopo plays an important role in terms of the possible location for industry, commerce and other economic activity. It is a major education and health centre and assists in the diffusion of new ideas and technologies to the rural areas. It is also the primary base for the operation of many departments and service providers. Please refer to Figure 6 below. The numbers indicate the locality of and direction in which the Photographs were taken.

The proposed development is located within the Urban area of Ixopo approximately 700 meters from the CBD (as the crow flies) and towards the south of the Provincial Route (R56) between Pietermaritzburg (approximately 85 km from Pietermaritzburg) and Kokstad (approximately 110 km from Kokstad). Please see Photograph 1. The site is bordered by the Ixopo water treatment plant towards the South (Please see Photograph 2), a formal Residential development towards the North (Please see Photograph 3) and informal settlement towards East (See photograph 4). A portion of the site currently lies vacant while almost a third of the site is occupied by the Choc City / Shayamoya informal settlement. See Photograph 5.

Ecological disturbances at the site include residential settlements where vegetation has been transformed. Extensive informal dumping (See Photograph 6) and roads (See Photograph 4) with ditches where stormwater is channeled, are found at the site. Extensive and visibly dense covers of alien invasive plant species are conspicuous at the site. See Photograph 7.

The topography of the site has a relatively steep to very steep north- north-easter slope from 1 049 meters above sea level in the north to 1 096 meters above sea level in the south.

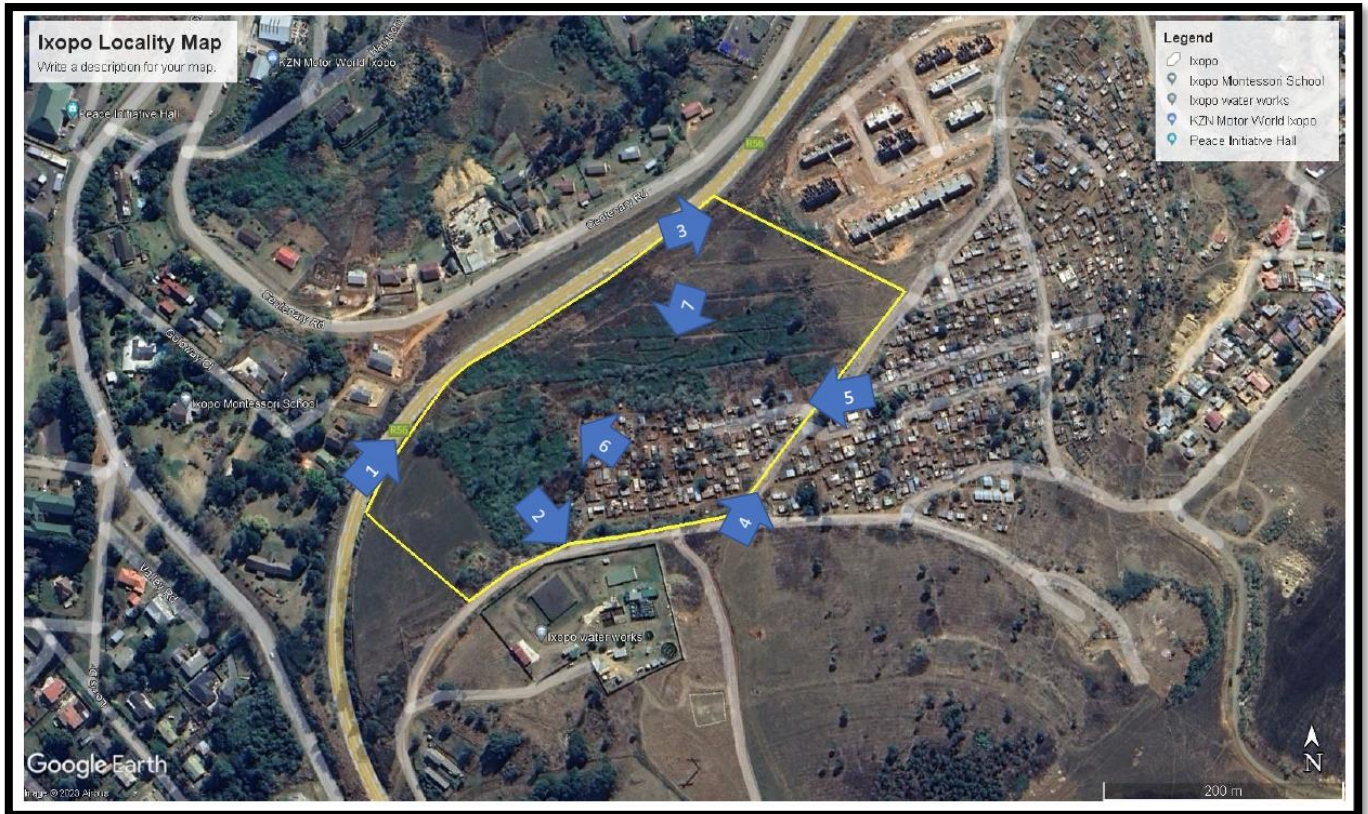


Figure 6: Locality Map. The numbers indicate the locality of and direction in which the Photographs were taken



Photograph 1: View of the Provincial Route (R56) that borders the site towards the North and North-West.



Photograph 2: The site is bordered by the Ixopo water treatment plant towards the South



Photograph 3: A formal Residential development borders the site towards the North



Photograph 4: Informal settlement towards the East. Also note the informal roads.



Photograph 5: Informal settlement on the left and vacant portion of the site on the right. Also note the informal roads.



Photograph 6: Informal dumping on site



Photograph 7: Alien invasive plant species are conspicuous at the site

As mentioned in Paragraph 3, 31 292 m² of the site is located within a CBA (KZN CBA Irreplaceable version 2016). (Please see Figure 3 for a copy of the CBA Map). The Screening Tool Report generated, using the National Web Based Screening Tool, has also indicated that the site has a Medium Sensitivity for Plant Species Theme (See Figure 7), Very High Terrestrial Biodiversity Theme (See Figure 8) and Aquatic Biodiversity Theme (See Figure 9) and a High Animal Species Theme (See Figure 10). As a result of these classifications, a Specialist was appointed to determine the sensitivity of the site. He concluded as follows:

Extensive covers of alien invasive plant species are conspicuous at the site. Vegetation is transformed at parts of the site, owing to residences, and at other parts, modified or degraded.

Animal species theme sensitivity

Relative animal species theme sensitivity is listed as high. No suitable habitat for *Hirundo atrocaerulea* (Blue Swallow) is present at the site and the occurrence of this species at the site is highly unlikely. No suitable habitat for the butterfly species *Chrysoritis phosphor borealis* is present at the site (needs specific indigenous forest habitat). No signs or observations of *Chrysospalax villosus*, *Dendrohyrax arboreus* of

Ourebia ourebi ourebi were noted at the site and based on habitat conditions it is highly unlikely that any of these mammals occur at the site. Such as listed in Tables 4.9 – 4.17 (Of the Fauna and Flora Habitat Report, Appendix C of this Report) no animals of particular conservation concern are likely to be present at the site. The overall animal theme sensitivity, following the ground truthing at the site, appears to be low.

Aquatic biodiversity theme sensitivity

Relative aquatic biodiversity theme sensitivity at the site is listed as very high owing to the presence of an aquatic CBA and strategic water source area. The site is not part of a FEPA Freshwater Ecosystem Priority Area (Nel *et. al.*, 2011). There are important wetlands and watercourses in the larger area. The present rain water run off systems at the site, in particular given the presence of extensive informal dumping and informal residences, are of concern. There are no wetlands at the site and locally at the site the aquatic biodiversity theme sensitivity is low. However, because of the importance of the strategic water source area the stormwater system, if the development is approved, should be carefully planned.

Plant species theme sensitivity

Relative plant species theme sensitivity is listed as medium. Extensive covers of alien invasive plant species are conspicuous at the site. Vegetation is transformed at parts of the site, owing to residences, and at other parts, modified or degraded. It is highly unlikely that plant species such as *Stachys comosa*, *Woodia verruculosa*, *Helichrysum pannosum*, *Sisyranches fanninae* and *Senecio dregeanus* would be present at the site. No signs of these species were observed. It is also highly unlikely that other sensitive species, such as Declining species prone to harvesting (see Table 4.7 and Table 4.8) (Of the Fauna and Flora Habitat Report, Appendix C of this Report) would occur at the site. The overall plant theme sensitivity, following the ground truthing, appears to be low.

Terrestrial biodiversity theme sensitivity

Relative terrestrial biodiversity at the site is listed as very high. This high sensitivity that is ascribed to the site area, is because of the presence of Critical Biodiversity Area 1, an Ecological Support Area, a Protected Areas Expansion Strategy, Strategic Water Source Areas and a mapped Vulnerable Ecosystem, the Midlands Mistbelt Grassland. During surveys at the site, it was found that the original vegetation type is partly transformed, modified, visibly degraded and that the relatively small site is largely isolated. There is little scope to restore the grassland at the site and conserve it as a natural unit of Midlands Mistbelt Grassland. The terrestrial biodiversity theme at the proposed footprints appears to be low at the site.

Ecological sensitivity at the site is **low and very-low**. Ecological sensitivity at the parts of the site where residential settlements occur, and vegetation has been transformed, is very-low.

Ecological sensitivity at the remainder of the site where vegetation is modified and where extensive and visibly dense covers of alien invasive plant species are present, is low.

Please see Figure 11 for a Sensitivity Map generated by the Specialist.

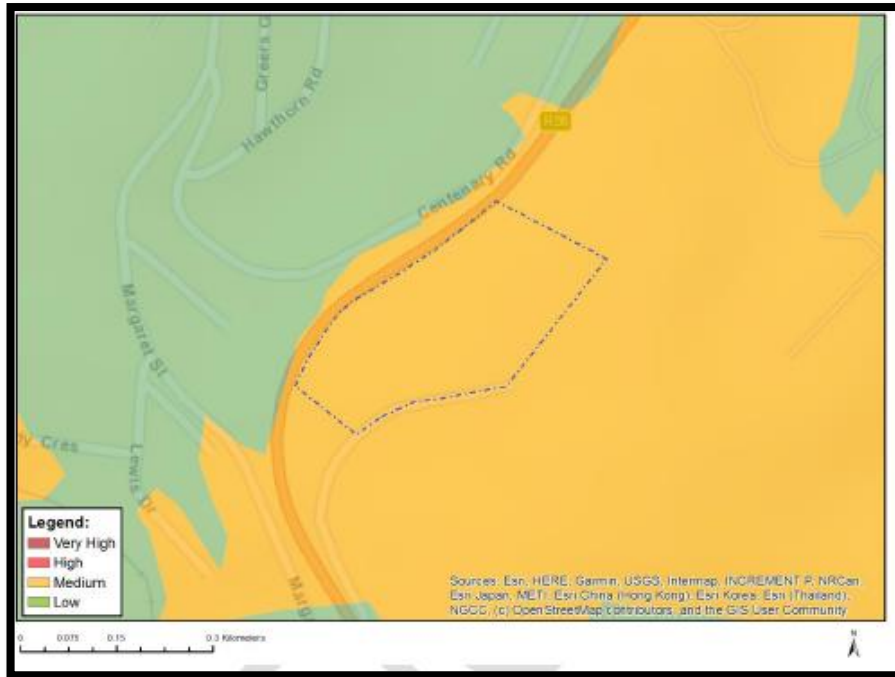


Figure 7: Plant Species Theme according to the Screening Tool Report generated, using the National Web Based Screening Tool

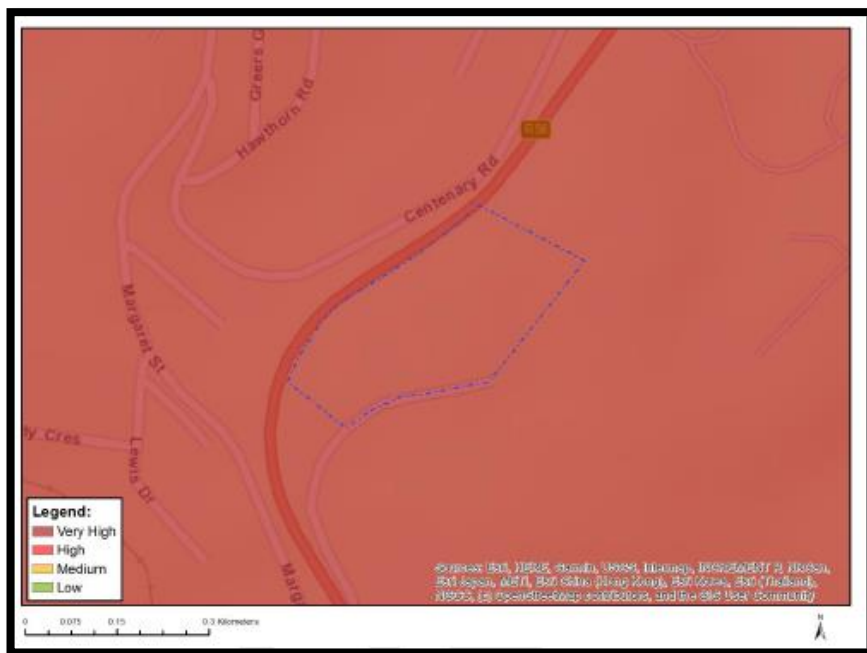


Figure 8: Terrestrial Biodiversity Theme according to the Screening Tool Report generated, using the National Web Based Screening Tool

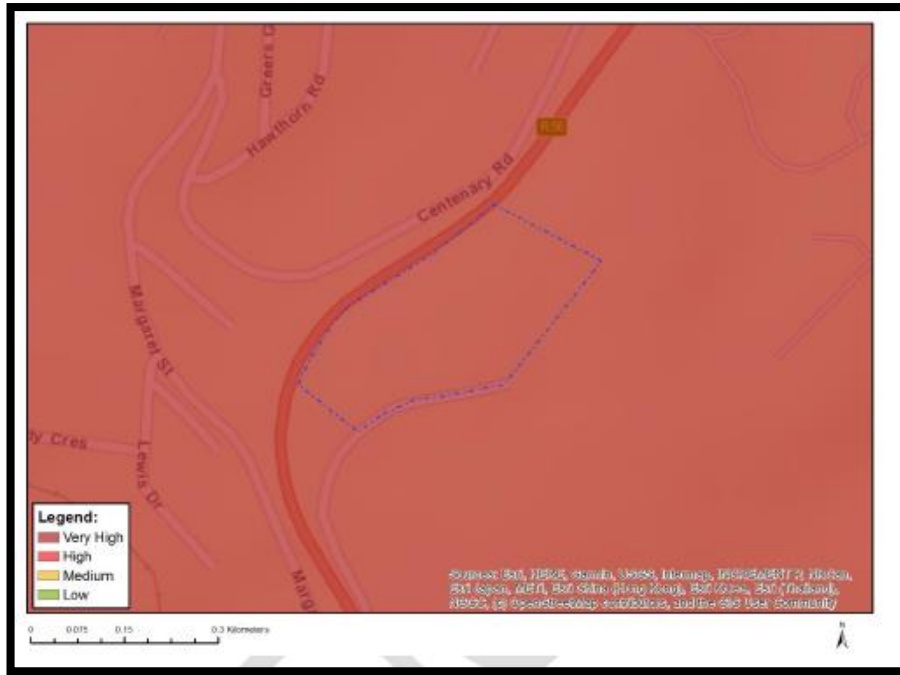


Figure 9: Aquatic Biodiversity Theme according to the Screening Tool Report generated, using the National Web Based Screening Tool

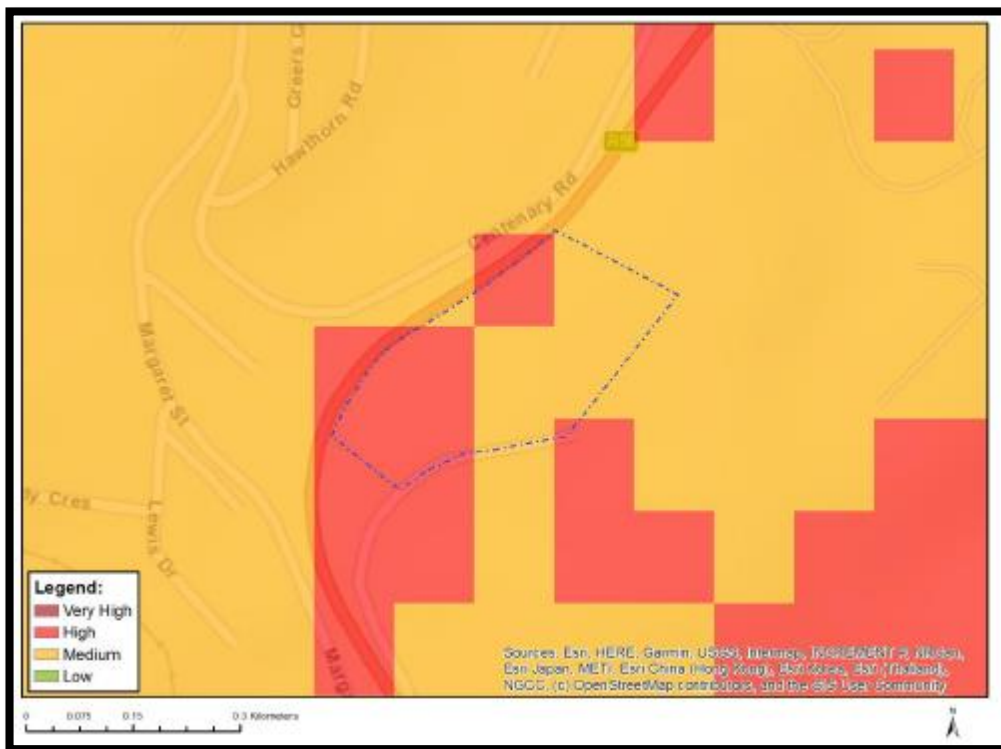


Figure 10: Animal Species Theme according to the Screening Tool Report generated, using the National Web Based Screening Tool

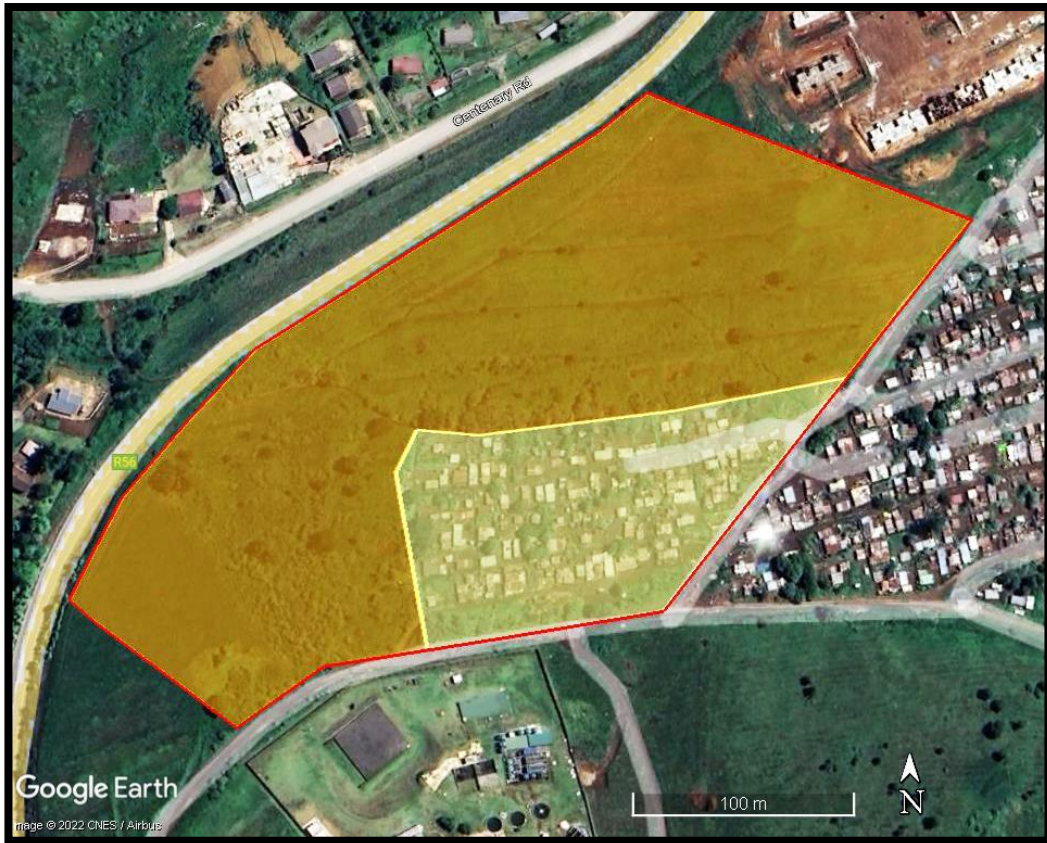


Figure 11: Sensitivity Map generated by the Specialist

- Red outline Boundaries of the site
- Light yellow outline and shading Very-low Sensitivity
- Orange outline and shading Low Sensitivity

The Surveyor-general 21-digit site reference number are:

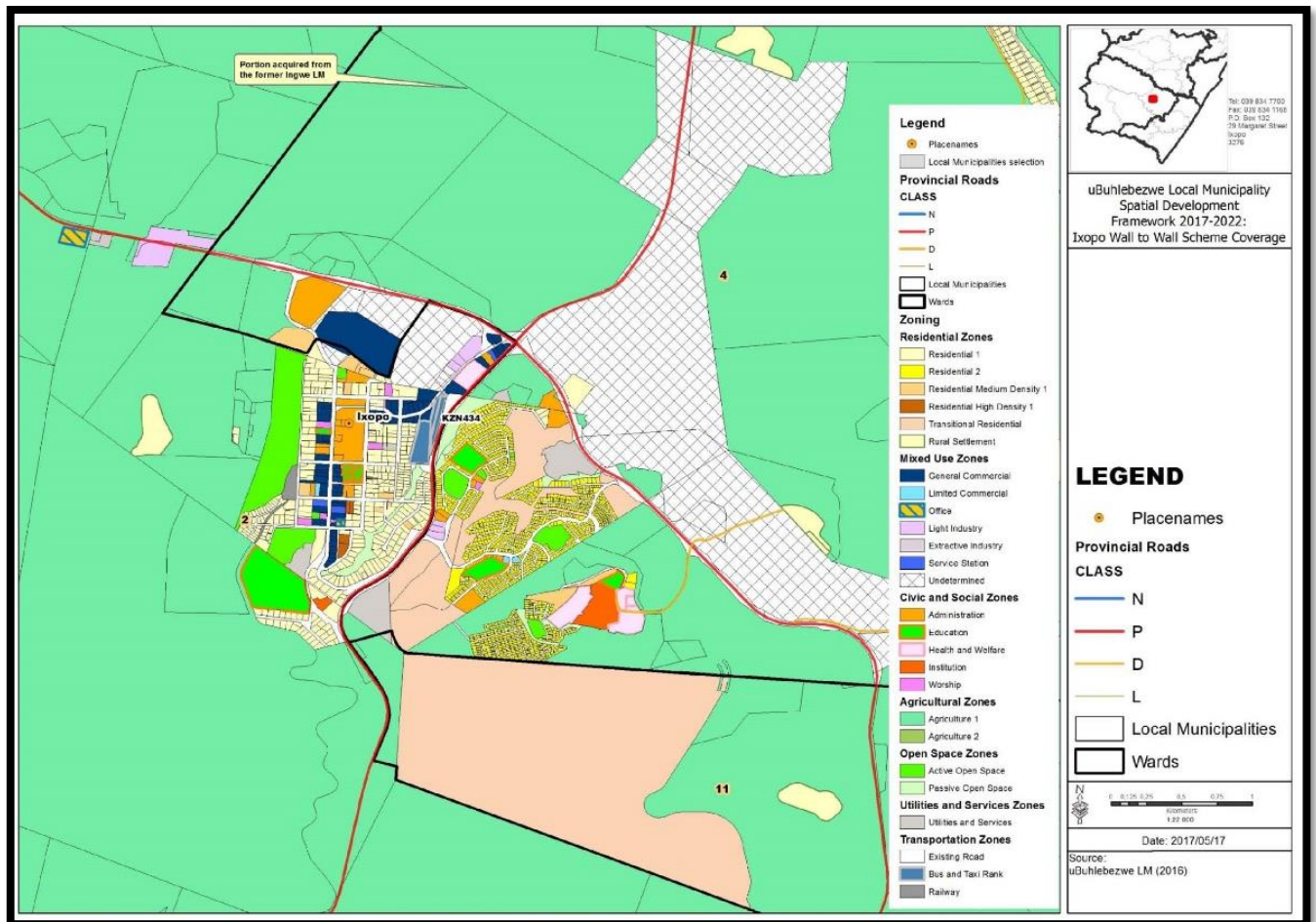
N	O	E	T	0	3	2	4	0	0	0	0	0	1	7	5	0	0	0	0
N	O	E	T	0	3	2	4	0	0	0	0	0	1	7	4	0	0	0	0

geographical coordinates for the site are:

Latitude /Longitude	Degrees	Minutes	Seconds
South	30°	09'	40,95"
East	30°	03'	42,93"

In terms of Ubulhebezwe Local Municipality Land Use Scheme, 2018, the current zoning of the area is as follows:

- Remaining Extent of Erf 175 – “Utilities and services”
- Remaining Extent Erf 174 – “Transitional Residential”



Zoning Map

5. LEGAL AND OTHER REQUIREMENTS

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
National Environmental Management Act No. 107 of 1998 as amended.	<p>NEMA is the guiding legislation that has been considered during the Environmental Impact Assessment process and the compilation of this Report.</p> <p>In terms of Section 24(2) of the NEMA the Minister may identify activities which may not commence without prior authorisation. The Minister thus published GNR 327 (Listing Notice 1), 325 (Listing Notice 2) and 324 (Listing Notice 3) (4 December 2014, as amended in April 2017) listing activities that may not commence prior to authorisation. The regulations outlining the procedures required for authorisation are published in GNR 326 (EIA Regulations) (4 December 2014, as amended). Listing Notice 1 identifies activities that require a Basic Assessment (BA) process to be undertaken, in terms of the EIA Regulations, prior to</p>	EDTEA	27 November 1998

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	<p>commencement of that activity. Listing Notice 2 identifies activities that require a Scoping & Environmental Impact Report (S&EIR) process to be undertaken, in terms of the EIA Regulations (201, as amended), prior to commencement of that activity. Listing Notice 3 identifies activities within specific areas that require a BA process to be undertaken, in terms of the EIA Regulations, prior to commencement of that activity.</p> <p>This Act places an onus on all levels of government to ensure that risk to the environment is identified and where it cannot be avoided, is minimised and mitigated. Should there be any impact on the environment during or after construction, the applicant, have a duty to take measures to address these impacts and undertake the necessary clean up and mitigation measures (Section 28 of the NEMA: EIA Regulations)</p>		
The Bill of Rights, Constitution of South Africa, Section 27 (1)(b)	<p>The Constitution of the Republic of South Africa is the legal source of all law, including environmental law, in South Africa. The Bill of Rights is fundamental to the Constitution of South Africa and in, section 24 of the Act, it is stated that:</p> <p>Everyone has the right (a) to an environment that is not harmful to their health or well-being; and (b) to have the environment protected, for the benefit of present and future generations through reasonable legislative and other measures that (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.</p> <p>Given that environmental management is founded partly on the principles of public participation, Section 195 of the Constitution is of primary relevance:</p> <p>(1) Public administration must be governed by the democratic values and principles enshrined in the constitution, including the following principles: (a) (b) (c) (d) (e) Peoples needs must be responded to, and the public must be encouraged to participate in policymaking. (f) Public administration must be accountable. (g) Transparency must be fostered by providing the public with timely, accessible and accurate information (Government Gazette, 1996).</p>	National Government	1994
New Regulations 2014 in terms of NEMA	Legislation consulted during the environmental impact assessment	EDTEA	7 April 2017

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	<p>process to determine whether any listed activities would be triggered. The Regulations were also consulted to determine inter alia the requirements regarding the contents of Scoping reports and the public participation process that should be followed.</p>		
National Water Act (36 OF 1998)	<p>National Water Act (NWA), 1998 (Act 36 of 1998) is the primary statute providing the legal basis for water management in South Africa and has to ensure ecological integrity, economic growth and social equity when managing and using water.</p> <p>The major objectives of the National Water Act are to:</p> <ul style="list-style-type: none"> •Aid in providing basic human needs; •Meet the growing demand of water in a sustainable manner; •Ensure equal access to water and use of water resources; •Protect the quality of water of natural resources; •Ensure integrated management of water resources; •Foster social and economic development; and •Conserve aquatic and related ecosystems. <p>Section 19 of the National Water Act states that the person responsible for land upon which any activity is or was performed which causes, has caused or is likely to cause, pollution of a water resource, must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring.</p>	Department of water and sanitation	1998
National Environmental Management: Biodiversity Act (NEMBA) (ACT NO. 10 OF 2004)	<p>The National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004), provides for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; 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; the establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith.</p> <p>In terms of Chapter 4 of the Above Act:</p> <p>52. (1) (a) The Minister may, by notice in the Gazette, publish a national list of ecosystems that are threatened and in need of protection.</p>	EDTEA	2004

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	<p>(b) An MEC for environmental affairs in a province may, by notice in the Gazette, publish a provincial list of ecosystems in the province that are threatened and in need of protection.</p> <p>(2) The following categories of ecosystems may be listed in terms of subsection:</p> <p>(a) critically endangered ecosystems, being ecosystems that have undergone severe degradation of ecological structure, function or composition as a result of human intervention and are subject to an extremely high risk of irreversible transformation;</p> <p>(b) endangered ecosystems, being ecosystems that have undergone degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems;</p> <p>(c) vulnerable ecosystems, being ecosystems that have a high risk of undergoing significant degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems or endangered ecosystems; and</p> <p>(d) protected ecosystems, being ecosystems that are of high conservation value or of high national or provincial importance, although they are not listed in terms of paragraphs (a), (b) or (c).</p> <p>(3) A list referred to in subsection (1) must describe in sufficient detail the location of each ecosystem on the list.</p> <p>53 (1) The Minister may, by notice in the Gazette, identify any process or activity in a listed ecosystem as a threatening process.</p> <p>(2) A threatening process, identified in terms of subsection (1) must be regarded as a specified activity contemplated in section 24(2)(b) of the National Environmental Management Act (1998) and a listed ecosystem must be regarded as an area identified for the purpose of that section.</p>		
National Environmental Management: Protected Areas Act (ACT NO. 57 OF 2003)	This Act aims to provide for a national system of protected areas in South Africa as part of a strategy to manage and conserve its biodiversity. The Protected Areas Act tries to ensure the protection of the entire range of biodiversity, referring to natural landscapes and seascapes.	National Department of Environmental Affairs (DEFF)	2003

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	<p>The Act makes express reference to the need to move towards Community Based natural Resource Management (CBNRM) as its objectives include promoting the participation of local communities in the management of protected areas. The purpose of the Act is:</p> <ul style="list-style-type: none"> •To protect ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes and their ecological integrity. •To conserve biodiversity in those areas; •To protect South Africa's rare species; •To protect vulnerable or ecologically sensitive areas; •To assist in ensuring the sustained supply of environmental goods and services; •To provide for the sustainable use of natural and biological resources; •To create or augment destinations for nature-based tourism; •To manage the interrelationship between natural environmental biodiversity, human settlement and economic development; •To contribute to human, social, cultural, spiritual and economic development; •To rehabilitate and restore degraded ecosystems and promote the recovery of endangered and vulnerable species. <p>This Act further stipulates various criteria which must be met before an area can be declared as a special nature reserve, national park, nature reserve and protected environment. It also prescribes a range of procedures, including consultation and public participation procedures which must be followed before any of the kinds of protected areas are declared.</p>		
National Heritage Resources Act, Act No. 25 of 1999 and the KwaZulu-Natal Heritage Act (Act No. 4 of 2008)	<p>Legislation consulted during the impact assessment process, to determine the legal requirements relating to the management of heritage resources that are present in and around the site.</p> <p>The KwaZulu-Natal Heritage Act (Act No. 4 of 2008) provides for the conservation and preservation of the physical and intangible heritage resources of the KwaZulu-Natal province</p>	SAHRA	1999
National Environmental Management: Waste Act, Act No. 59 of 2008, KZN EDTEA together with the List of Waste Activities that Have, or are Likely to Have, a Detrimental Effect on the Environment, GN No. 921 of 29 November 2013	Legislation consulted to determine whether a waste licence will have to be obtained for the development.	EDTEA Waste Section	2008

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
<i>National Environmental Management: Air Quality Act (Act 39 of 2004)</i>	To protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social Development. Construction activities may cause some air pollution.	Department of Environmental Affairs: Directorate Air quality management	2004
<i>The Conservation of Agricultural Resources Act (Act 43 of 1983)</i>	This Act regulates the flow pattern of runoff water, control of weeds and invader plants.	KZN: Department of Agriculture	1983
<i>National Veldt and Forest Fire Act (Act 101 of 1998)</i>	Chapter 4 places a duty on owners to prepare and maintain firebreaks.	Department of Agriculture, Forestry and Fisheries	1998
<i>National Forests Act, Act 84 of 1998 (NFA) KZN EDTEA with GN1602 of December 2016.</i>	During the construction phase of the development certain protected trees may be affected. Licences will have to be obtained from the Minister before the affected trees may be cut, disturbed, damaged or destroyed. GN1602 of December 2016 contains the list of protected trees.	Department of Agriculture, Forestry and Fisheries	1998
<i>Occupational Health and Safety Act (Act 85 of 1993)</i>	To provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery and the protection of persons other than persons at work against hazards to health.	Department of Employment and labour	1993
<i>Petroleum Products Act (Act 120 of 1977), as amended</i>	The Act regulates the distribution and sale of petroleum	Department of Mineral resources.	1977

The Harry Gwala District Municipalities Environmental Management Framework; April 2019

The Harry Gwala District Municipality (HGDM), in partnership with the KwaZulu-Natal (KZN) Department of Economic Development, Tourism and Environmental Affairs (EDTEA), embarked on a process to develop an Environmental Management Framework (EMF) for the District. An EMF is a study of the biophysical and socio-cultural systems of a geographically defined area to reveal where specific activities may best be practiced and to offer performance standards for maintaining appropriate use of such land.

(This document has identified the following Laws & Policies, Strategies and Plans & Programmes that were also considered (Where applicable) in the compilation of this BAR)

Laws & Policies	Strategies	Plans & Programmes	Authorities
<p><i>Multilateral Environmental Agreements, such as –</i></p> <ul style="list-style-type: none"> - <i>Rio declaration on Environment and Development, 1992</i> - <i>Agenda 21, 1992</i> - <i>Convention on Biological Diversity, 1992</i> - <i>Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention), 1979</i> - <i>Convention on the Illegal Trade in Endangered Species (CITES), 1973</i> - <i>Ramsar Convention on Wetlands Conservation, 1971</i> - <i>United Nations Framework Convention on Climate Change, 1992</i> 	<p>National Protected Area Expansion Strategy 2008</p> <ul style="list-style-type: none"> ▪ South Africa's National Biodiversity Framework (NBF) ▪ South Africa's National Biodiversity Strategy and Action Plan (NBSAP) 2005 ▪ National Biodiversity Assessment 2004 (updated 2011) ▪ National Grassland Biodiversity Programme 2011 ▪ National Strategy for Sustainable Development and Action Plan ▪ Mining and Biodiversity Guidelines. Mainstreaming biodiversity into the mining sector 2013 	<p>EKZNW Systematic Terrestrial Conservation Plan</p> <ul style="list-style-type: none"> ▪ HGDM's BSP 2014 ▪ Stewardship programmes ▪ Municipal Strategic Environmental Assessments ▪ Threatened Ecosystems ▪ Zonation Plan ▪ WHS Buffer Zone Policy ▪ Maloti Drakensberg Transfrontier Project ▪ EKZNW Guideline for the Incorporation of Biodiversity Areas and Features into the Municipal Land Use Schemes (2018) 	<ul style="list-style-type: none"> ▪ DEFF ▪ EDTEA ▪ EKZNW ▪ DWS ▪ DMR ▪ DAFF ▪ DARD ▪ SANBI ▪ HGDM & LMs

The Harry Gwala District Municipalities Environmental Management Framework; April 2019

The Harry Gwala District Municipality (HGDM), in partnership with the KwaZulu-Natal (KZN) Department of Economic Development, Tourism and Environmental Affairs (EDTEA), embarked on a process to develop an Environmental Management Framework (EMF) for the District. An EMF is a study of the biophysical and socio-cultural systems of a geographically defined area to reveal where specific activities may best be practiced and to offer performance standards for maintaining appropriate use of such land.

(This document has identified the following Laws & Policies, Strategies and Plans & Programmes that were also considered (Where applicable) in the compilation of this BAR)

Laws & Policies	Strategies	Plans & Programmes	Authorities
<ul style="list-style-type: none"> - Kyoto Protocol, 1997 - Protocol on Shared Water Courses, 2002 - African Convention on Nature and Natural Resources, 1968 - Man and Biosphere Programme, 1971 - SADC Protocol on Wildlife and Law Enforcement, 1999 - SADC Regional Biodiversity Strategy, 2006 ▪ NEMA ▪ National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEM:BA) ▪ National Water Act (Act 36 of 1998) (NWA) ▪ National Environmental Management: Air Quality Act (Act 39 of 2004) (NEM:AQA) ▪ National Environmental Management: Waste Act (Act 59 of 2008) (NEM:WA) ▪ NFA ▪ Mountain Catchments Areas Act (Act No. 63 of 1970) ▪ National Veld and Forest Fire Act (Act No. 101 of 1998) ▪ Mineral and Petroleum Resource Development Act (Act 28 of 2002) (MPRDA) ▪ Conservation of Agricultural Resources Act (Act 43 of 1983) (CARA) and lists of declared alien invasive plants and weeds to be eradicated or controlled ▪ White Paper on Conservation and Sustainable Use of South Africa's Biological Diversity (July 1997) ▪ NEM:BA Alien and Invasive Species Regulations (GN No. 598, 1 August 2014) ▪ Listed Invasive Species (GN 864 of 29 July 2016) ▪ KZN Nature Conservation Management Act (Act No. 09 of 1997) Natal Nature Conservation Ordinance (15 of 1974) ▪ National Climate Change Response Policy, 2011 ▪ Municipal by-laws 			

5.2 (i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and

(ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments explanation of how the proposed development complies with and responds to the legislation and policy context

5.2.1 Existing land use rights

In terms of Ubuhlebezwe Local Municipality Land Use Scheme, 2018, the current zoning of the area is as follows:

1. Remainder of Erf 175 – “Utilities and services”
2. Erf 174 – “Transitional Residential”

5.2.2.1 Provincial Spatial Development Framework (PSDF)

The KwaZulu-Natal SDF is geared towards “growing the economy for the development and the improvement of the quality of life of all people living in the Province of KwaZulu-Natal” and as such, aims to meet the needs of the people, whilst promoting sustainable economic growth.

The proposed activity aligns itself with the Provincial Spatial Development Framework regarding provision of housing and balanced land uses, which will be carried out in a sustainable manner. The development may also provide the surrounding community with employment opportunities, thereby contributing towards poverty eradication.

5.2.2.2 Harry Gwala District Spatial Development Plan, 2014/2018

The Harry Gwala District Municipality SDF provides a spatial reflection of the needs and priorities established in the IDP and addressing the specific and unique issues and opportunities within the district. It provides strategic guidance for development, including addressing issues of more appropriate distribution of economic and infrastructure development, social upliftment and environmental conservation. It also ensures alignment with the SDF’s of the Local Municipalities within the District as well as the surrounding neighbouring District Municipalities.

The SDF provides the spatial dimension of economic trends and objectives, and on this basis a hierarchy of nodes consisting of primary nodes, secondary nodes, tertiary nodes, rural service nodes and tourism and recreation nodes is proposed. The hierarchy of nodes proposed in this context are considered at a district level. The primary and secondary nodes, as identified in the Harry Gwala Spatial Development Framework were used to target areas of significant economic opportunities where social and economic impact would be felt the most should the infrastructure recourses be directed in those areas.

To avoid a further disablement on the growth of this town the Harry Gwala District has supported the Ixopo Programs that seek to address the challenges faced by these towns. Both Harry Gwala District and Local Municipalities have worked hand in hand to develop such plans. Built into these plans is a phased approach with interrelated and, in some instances, overlapping activities that will enhance the functioning of the towns

5.2.3 The Harry Gwala District Municipalities Environmental Management Framework; April 2019

The Harry Gwala District Municipality (HGDM), in partnership with the KwaZulu-Natal (KZN) Department of Economic Development, Tourism and Environmental Affairs (EDTEA), embarked on a process to develop an Environmental Management Framework (EMF) for the District. An EMF is a study of the biophysical and socio-cultural systems of a geographically defined area to reveal where specific activities may best be practiced and to offer performance standards for maintaining appropriate use of such land.

In order to address the triggers for sustainable development in the HGDM and the priority environmental opportunities and constraints, the specific objectives of the EMF will include the following:

1. To consolidate environmental information for the District;
2. To identify geographical areas in terms of Section 24 of the National Environmental Management Act (NEMA) (Act No. 107 of 1998);
3. To consider the influence of the geographical areas to the listed activities under the Environmental Impact Assessment Regulations (EIA) of 2014, as amended;
4. To develop a decision support system for development in the area to ensure that environmental attributes, issues and priorities are taken into account;
5. To inform development planning in the District; and
6. To provide strategic guidance on environmental, economic and social issues in HGDM.

According to this document, the site falls within the areas mapped as Urban area with the expression to be managed as sustainable urban areas. As such the site is ideally located for the development proposed.

5.2.4.1 Ubuhlebezwe Integrated Development Plan

The Ubuhlebezwe integrated Development Plan is a development tool that aims to integrate and coordinate service delivery within the municipality. It assists the municipality in fulfilling its powers and functions. It forms the basis upon which the annual budgets of the municipality must be based.

Ubuhlebezwe comprises of a Housing Sector Plan that is based on the principles, policies and proposals of the Housing Policy and Implementation Plan prepared. This offers a range of choices that are available and are applicable to deal with housing shortages.

The IDP highlights the need for the municipality to venture into new land engagements. The proposed Ogle farm precinct plan is considered as a development that could uplift the Ixopo Town area. It will unlock potential and will allow for the integration of different land uses.

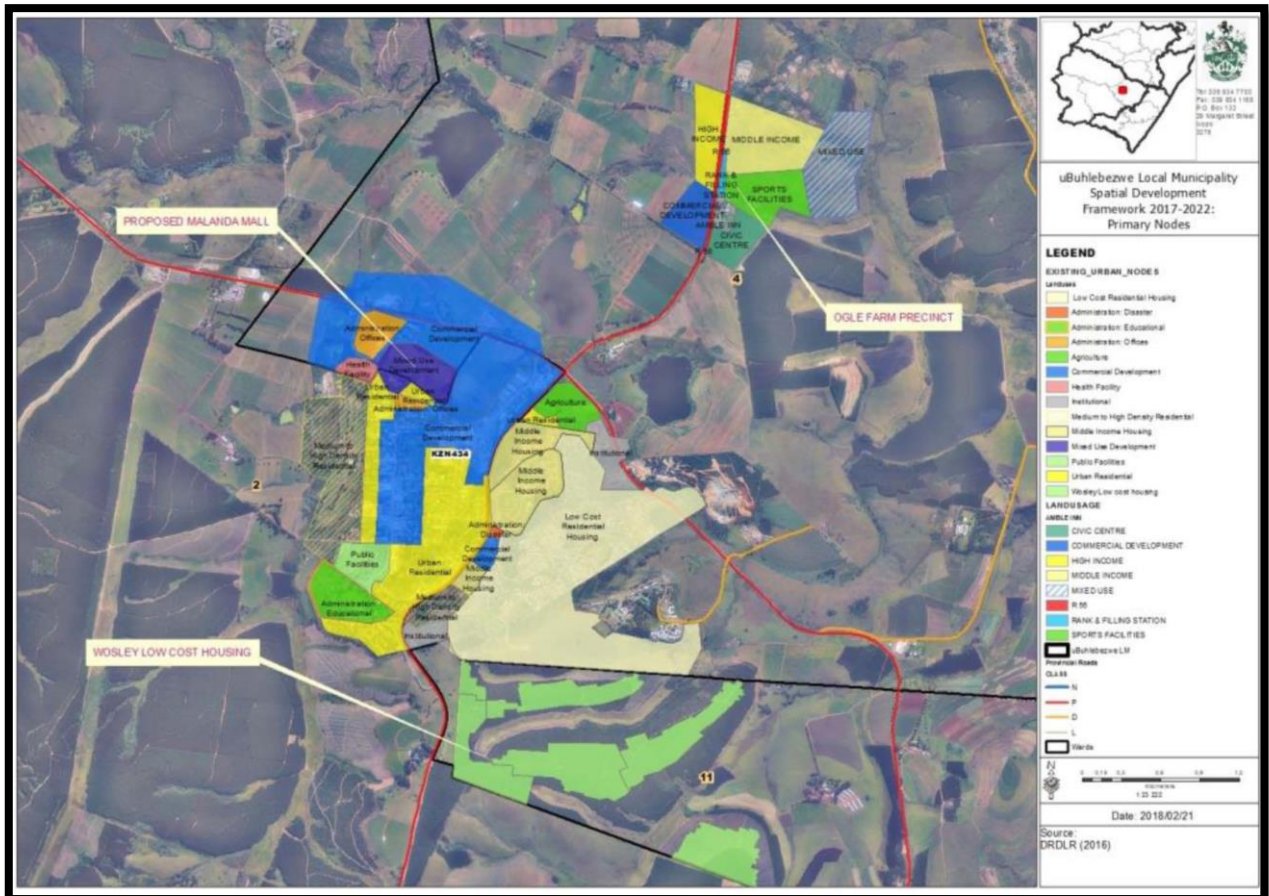
5.2.4.2 Ubuhlebezwe Spatial Development Framework, 2017 – 2021

The Municipal Systems Act indicates that the Spatial Development Framework (SDF) is one of the components of the IDP and should form part of the process. The Ubuhlebezwe SDF provides strategic interventions on the issues identified in the IDP. Likewise, the SDF also provides a spatial vision, objectives and development strategies for the whole Ubuhlebezwe area.

The SDF gives a broad indication of where different types of development should take place or where they have been proposed within the municipal area. According to the SDF of the Ubuhlebezwe Municipality, the municipality has recently acquired urban land parcels as a way to promote development and to grow the Town of Ixopo. The current urban regeneration highlights that Ixopo can be divided into various precincts

providing the opportunity of smaller functional areas. This will also enable the municipality to prioritize areas most in need of planning and outline the desired future development of the area.

From the SDF map below it is clear that the application site has been earmarked for medium to high density residential use and that the proposed development is in line with the spatial vision for the area.



Ubuhebezwe SDF Map: Primary Nodes

5.2.5 Spatial Planning and Land Use Management Act, Act 16 of 2013, (SPLUMA).

The Spatial Planning and Land Use Management Act, Act 16 of 2013, (SPLUMA) came into operation on the 1st of July 2015 and has changed the Planning profession to such an extent that Planning can no longer be used as a tool to separate people and communities. The objectives are:

- provide for a uniform, effective and comprehensive system of spatial planning and land use management for the Republic;
- ensure that the system of spatial planning and land use management promotes social and economic inclusion;
- provide for development principles and norms and standards;
- provide for the sustainable and efficient use of land;
- provide for cooperative government and intergovernmental relations amongst the national, provincial and local spheres of government; and

- *Redress the imbalances of the past and to ensure that there is equity in the application of spatial development planning and land use management systems.*

SPLUMA's desired outcomes:

- Coherent regulatory framework;
- Constitutional synergy (clear delineation, distribution & allocation of powers among spheres);
- Predictable and transparent regulatory system; and
- Clear, rational and efficient inter-linkages of sectoral and inter-sphere planning tools and policies.

The following guidelines are given for Land Use Management:

- Land resources are used for a variety of purposes which interact and may compete with one another; therefore, it is desirable to plan and manage all uses in an integrated manner.
- Land use management examines all uses of land in an integrated manner, it makes it possible to minimize conflicts, to make the most efficient trade-offs and to link social and economic development with environmental protection and enhancement, thus helping to achieve the objectives of sustainable development.
- The essence of the integrated approach finds expression in the coordination of the sectoral planning and management activities concerned with the various aspects of land use and land resources.
- Integration should consider all environmental, social and economic factors.
- Integrated consideration facilitates appropriate choices and trade-offs, thus maximizing sustainable productivity and use.

The broad objective is to facilitate allocation of land to the uses that provide the greatest sustainable benefits and to promote the transition to a sustainable and integrated management of land resources.

5.2.6 Community/area's need for the activity and the associated land use concerned in terms of strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)

The project addresses the provision of basic services in the form of housing, which is highlighted as one of the national developmental outcomes and also forms part of the uBuhlebezwe Municipality's IDP. Keeping in line with the principles outlined in the PSDF, in terms of Balanced Development, this activity will transform a parcel of land into a housing development.

5.2.7 National context and the National Development Plan for 2030

The National Development Plan was compiled by the National Planning Commission in 2011. The vision of the plan is that South Africa will write a new story where the nation's energies are focused both on attacking poverty and expanding a robust, entrepreneurial and innovative economy. Over the next two decades and beyond, communities will need the resources and capabilities to become their own engines of development and government must support this. Government has to ensure that poor people have the environment, services and skills to improve their lives. At the same time, government must create the conditions and environment for higher levels of public and private investment to create jobs and ensure rising incomes.

The national development plan proposes to invigorate and expand the economic opportunity through investment in infrastructure, more innovation, private investment and entrepreneurialism. The economy will absorb more labour – especially of new work seekers – and wage moderation at all levels will contribute to

rising employment. Broadening these opportunities requires faster, more inclusive economic growth and higher levels of investment.

Some of the critical actions of the 2030 National Development Plan include reducing poverty and inequality and developing new spatial norms such as fixing housing market gaps. Therefore, this activity fits into the National Development Plan as it will allow for the provision of poverty eradication by creating employment opportunities, as well as by providing additional housing within the uBuhlebezwe Local Municipality in order to meet the needs of a growing population.”

5.2.8 The 17 Strategic Integrated Projects (SIPS)

Not listed.

5.2.9 Integrated Environmental Management as set out in Section 23 of NEMA as amended.

The IEM guidelines encourage a pro-active approach to sourcing, collating and presenting information in a manner that can be interpreted at all levels. The basic principles underpinning IEM are that there be: informed decision-making;

- accountability for information on which decisions are taken;
- accountability for decisions taken;
- a broad meaning given to the term environment (i.e. one that includes physical, biological, social, economic, cultural, historical and political components);
- an open, participatory approach in the planning of proposals;
- consultation with interested and affected parties;
- due consideration of alternative options;
- an attempt to mitigate negative impacts and enhance positive aspects of proposals;
- an attempt to ensure that the ‘social costs’ of development proposals (those borne by society, rather than the developers) be outweighed by the ‘social benefits’ (benefits to society as a result of the actions of the developers);
- democratic regard for individual rights and obligations;
- compliance with these principles during all stages of the planning, implementation and decommissioning of the proposals (i.e. from ‘cradle to grave’); and
- the opportunity for public and specialist input in the decision-making process.

The general objectives of Integrated Environmental Management have been taken into account in this Basic Assessment report by means of identifying, predicting and evaluating the actual and potential impacts on the environment, socio-economic conditions and cultural considerations and cultural heritage component. The risks, consequences, alternatives as well as options for mitigation of activities have also been considered with a view to minimise negative impacts, enhance benefits and promote compliance within the principles of environmental management.

Additionally the Basic Assessment process will be undertaken to ensure I&APs have been afforded the opportunity to comment on the proposed activity and that their comments/inputs/concerns will be taken into consideration during the assessment process.

5.2.10 The principles of environmental management as set out in Section 2 of NEMA

The principles of NEMA have been considered in this assessment through compliance with the requirements of the relevant legislation in undertaking the assessment of potential impacts, as well as

through the implementation of the principle of sustainable development. In addition, the successful implementation and appropriate management of this project will ensure socio-economic upliftment.

This process will be undertaken in a transparent manner and all efforts will be made to involve interested and affected parties, stakeholders and relevant Organs of State such that an informed decision can be made by the Regulating Authority.

5.2.11 Conclusion

The study is conducted in such a way as to comply with the instructions regarding legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments (as contained within the above-mentioned documents).

The study is conducted in such a way as to comply with the instructions regarding such studies and reports (as contained within the above-mentioned documents).

The following aspects have been dealt with:

SCHEDULE

Actions	Timeframe
1 Communication with authorities and source and analyse relevant baseline information and undertake site inspections	3 days
2 Compile Environmental Application Form for the project	2 days
3 Compile an <i>information requirements list</i> to be distributed to the project team. The Information required would assist with completion of the BAR.	2 days
4 Identify key interested and affected parties (I&APs)	1 day
5 Compilation of terms of reference for specialist studies	2 days
6 Commission specialist studies	1 day
7 Compile draft BAR and make available to the public for a 30 day commenting period and submit the application form to the competent authority. NB: According to the new Regulations a BAR must be submitted 90 days after the application has been submitted. The implication is that all information must be available within 80 days after submitting the Application.	3 days for compilation and 30 days for commenting period (The competent authority has 90 days to request additional information or to refuse the application, from the date of submission)
8 Prepare an Information Sheet (summary of the draft BAR) and distribute to I&APs	1 day
9 Compile and publish media notices (for the BAR) in relevant newspapers	7 – 10 days depending on the day the newspaper is published
10 Compile and place poster/s along the boundary of the site	1 day
11 Hold a public meeting / Open House / focus meeting with I&APs	1 day
12 Receive and address first round of comments from public	3 days
13 Should the draft BAR require substantial changes, these changes will be incorporated into the draft BAR and distributed	Included above (allow an additional 50 days to include #14 below)

14 Allow the identified public to provide comment within a 30 day period on above report.	3 days for compilation and 30 days for commenting period (Competent authority has an additional 50 days)
15 Address comments received on the draft BAR, Finalise BAR and update comments and response table; finalise Basic Assessment Report and submit to authorities	5 days
16 Submit final BAR to authorities for a final decision	1 day, The department has 107 days from the date of receipt to review and come to a final decision.
17 Once the decision is issued, all I&Ps must be formally informed of the decision	20 days
TOTAL AMOUNT OF DAYS:	197 days

6. NEED AND DESIRIBILITY

As in the rest of South Africa, there is a housing shortage in the area. In terms of section 9(1) of the National Housing Act (107 of 1997), every municipality must, as part of the municipality's process of integrated development planning (IDP) take all reasonable and necessary steps to ensure that the inhabitants within its area of jurisdiction have access to adequate housing on a progressive basis by setting housing delivery goals, identifying suitable land for housing development and planning, facilitating, initiating and co-ordinating housing development in its area of jurisdiction.

Housing comprises a series of complex interrelationships between people, their needs and values and resources within a political and legal environment. This complexity requires a focused approach to efforts aimed at providing housing. National Government has started to respond by putting the necessary policy and legislative environment in place.

This framework outlines the roles and responsibilities of different spheres of government in relation to housing, as well as dealing with aspects relating to the design and content of housing policy and legislation. In the context of this framework the uBuhlebezwe Local Municipality is required to take all reasonable steps to ensure the provision of adequate housing to its residents.

Various policy directions and legislation exist relating to the role and responsibilities of the different spheres of government to provide and ensure the provision of housing opportunities to affected communities.

Of these, the comprehensive plan for the Development of sustainable Human Settlements based on the Breaking New Ground Principles (BNG) forms the basis on which housing development should be implemented.

The aim is to move beyond the provision of basic shelter towards achieving the broader vision of sustainable human settlements and more efficient towns, cities and regions. The following factors will be taken into consideration in order to achieve the vision:

- Progressive Informal Settlement Eradication: These settlements must be integrated into the broader urban setup so as to overcome spatial, social and economic exclusion. The plans encourage the eradication of informal settlements through in-situ upgrading in

desired locations coupled with the relocation of household where development is not possible or desirable.

- Promoting densification and Integration: The aim is to integrate previously excluded groups into the urban area so as to enable them to enjoy the benefits it offers and to create more integrated, functional and environmentally sustainable human settlements, towns and cities.
- Enhancing Spatial Planning: Greater co-ordination and alignment of various planning instruments and economic policies lies at the heart of sustainable human settlements.
- Provision of a mix of housing typologies for different income groups (Subsidised, GAP, Affordable and bonded Housing opportunities).

Enhancing the location of New Housing Projects: The location of past housing projects was said to reinforce apartheid spatial settlement patterns. Spatial restructuring aims to achieve a more decisive Intervention In land markets. The following interventions are envisaged viz. accessing well located state-owned and parastatal land: acquisition of well-located private land for housing development, funding for land acquisition and fiscal incentives.

Ubuhlebezwe faces housing challenges in both the rural and urban settings of the municipality. The urban setting involves the growing of informal settlement challenges coupled with the rectification issues dealing with past housing developmental quality standards. There are also issues around the limited availability of renting spaces to house the forever growing working-class resulting in more expensive backyard renting as the main option available. The rural context largely includes robust growth of settlement patterns as well as the rural human shelter made of informal structures which are not applicable to the general housing standards.

Multiple housing projects are underway and future housing projects have been planned for the municipality with a total housing provision of 12 609 units including the integrated residential development program, upgrading of informal settlements, housing assistance in emergency circumstances, community residential units programme and individual subsidy program.

Development within or adjacent to the towns of Ixopo and UMzimkhulu have substantially been adversely impacted due to the lack of well-located land and the large backlog in providing the required bulk and connector services to support such initiatives. These issues have resulted in a backlog in housing provision in the municipality with rising slums and poor housing conditions. As such there is a definite need for housing provision in Ubuhlebezwe.

Ixopo has been identified for significant residential development which could reduce the backlog of housing provision in the municipality and improve the living condition and quality of life of residents. Ixopo is a well-located town and has been identified as a primary node for infrastructural and services expansion (including housing), a provincial priority corridor (linking internal and external nodes) and a regional connector (playing a fundamental role in connecting this municipality with other neighbouring municipalities). This places Ixopo as a prime town for residential development.

Consistent with national priorities, environmental authorities must support *"increased economic growth and promote social inclusion"*, whilst ensuring that such growth is *"ecologically sustainable"*. In the National Spatial Development Perspective (NSDP) it is highlighted that, to achieve the goal of stimulating sustainable economic activities and to create long-term employment opportunities, it is required that spending on

economic infrastructure is focused in priority areas with potential for economic development, with development to serve the broader societies' needs equitably

During the construction phase, temporary employment will be created. The increased employment in the area during the construction phase will also result in increased expenditure, which, in addition, will mean that more than just the proposed jobs required for the construction on the site will be created due to economic spin-offs that will result.

7. ALTERNATIVES

One of the objectives of a BA is to investigate alternatives to the proposed project. The IEM procedure stipulates that the environmental investigation needs to consider feasible alternatives for any proposed development. Therefore, a number of possible proposals or alternatives for accomplishing the same objectives should be identified and investigated. In order to ensure that the proposed development enables sustainable development, *feasible* alternatives must be explored (S. Cliff, 2015).

The identification, description, evaluation and comparison of alternatives are important for ensuring a sound environmental scoping process. Alternatives should be considered as a *norm* within the Environmental Process (S. Cliff, 2015).

Alternatives have been considered in terms of EIA Regulation, 2014 Appendix 1(h). Alternatives considered includes a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative have also been included to act as a baseline against which the impacts of the other alternatives are assessed.

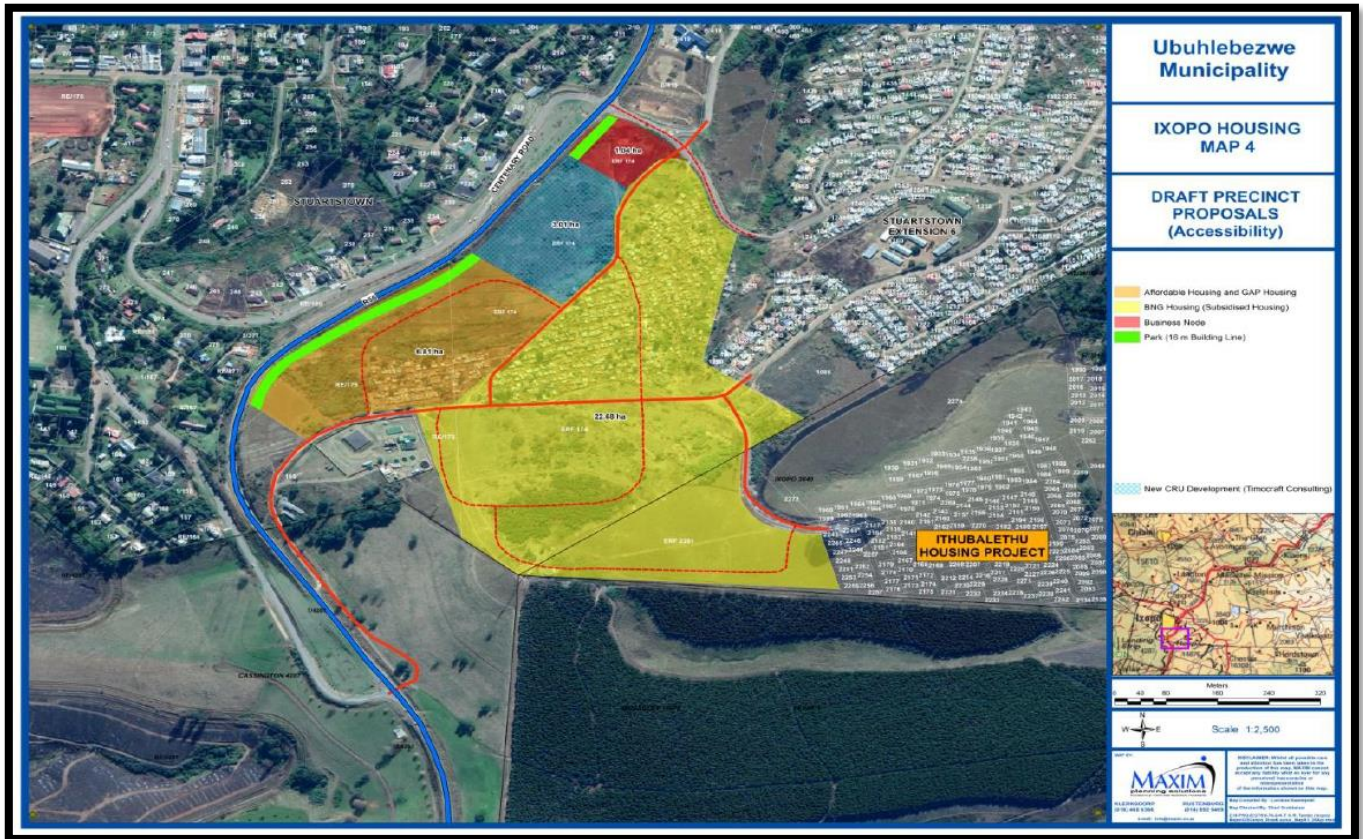
The determination of whether site or activity (including different processes, etc.) or both is appropriate have been informed by the specific circumstances of the activity and its environment.

7.1 FEASIBLE AND REASONABLE ALTERNATIVES

“alternatives”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- (a) the property on which or location where it is proposed to undertake the activity;**
- (b) the type of activity to be undertaken;**
- (c) the design or layout of the activity;**
- (d) the technology to be used in the activity;**
- (e) the operational aspects of the activity; and**
- (f) the option of not implementing the activity.**

Site Alternatives	Description
<p>The Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province</p>	<p>The uBuhlebezwe Municipality has acquired the proposed land which is undeveloped. The Municipality aims to utilise the full development potential of the proposed land in order to provide housing to the local community and to promote economic growth in the area. The municipality also aims to maintain the aesthetic value of the project area.</p> <p>The site was deemed to hold minimal biodiversity significance due to the site currently being significantly disturbed as a result of informal Housing that is present on site. The site is also located in close proximity to service infrastructure that is available in the area. The site is also in close proximity to the CBD.</p> <p>The proposed site is also preferred due to existing accessibility from the R56 road being available. By remaining within the existing access road footprints it will reduce the new construction area, and thus reduce the impact on the environment.</p> <p>Taking the above into account, the preferred site enables the uBuhlebezwe Municipality to maintain the aims and objectives of this project while also facilitating socio-economic growth in an environmentally sustainable manner</p>
Design and Layout Alternatives	Description
<p>Proposed Layout (preferred or only site alternative)</p>	<p>Establishment of a Township consisting of 88 “Residential 3” Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province. Refer to Figure 2 for a copy of the Proposed Layout Plan.</p> <p>This is the preferred alternative at this stage as funding for Alternative 1 is not available at this stage.</p>
<p>Alternative 1: Layout alternative, involving the inclusion of development on additional land.</p>	<p>Establishment of a Township located on the Remaining Extent of Erf 175, a Portion of Erf 174 and Erf 2281 Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.</p> <p>The total site is about 30.543 hectares. The proposed development will comprise of an affordable/GAP housing, subsidised housing and business development (OR Tambo precinct). subject to Council approval. The detailed design of OR Tambo precinct internal layout will only be finalised at a later stage when the proposed development’s township rights have been approved, the general layout plans will be circulated to the various departments of the Local Authority. This integrated mixed-use development consists of approximately 136 stands of affordable housing units with stand sizes between 350m² and 400m², approximately 680 stands with an average size of 250m² (including social amenities) and a business node on 1.04ha.</p> <p>Please refer to Figure below for a copy of the Layout plan for Alternative 1.</p>



Layout plan for Alternative 1

e) **No-go alternative**

The only other alternative that exists for the proposed development is the “no-go” option which will imply that the status quo will prevail. This is unacceptable as Informal settlements consist of non-conventional housing built without complying with legal building procedures. Broadly, these crude dwellings mostly lack proper indoor infrastructure, such as water supply, sanitation, drainage, waste disposal and proper road access. There is also a bond between poor housing and environmental conditions in informal settlements which also reflects poverty. Linking basic services such as water to health is viewed as a false separation as these services are ‘intimately related to housing’. It becomes a housing issue if children playing outside the house contract diarrhoea via ingesting pathogens from faecal matter which contaminates the land on which they play. Otherwise, it is the house which provides for shelter against injury, weather and disease. Improving the surroundings of the house is to limit severe health risks existing within poor quality housing.

In addition to the above mentioned, other land parcels will have to be sourced to provide for this need within the community. This will imply that the development will not take place and will result in urban sprawl.

f) **Please motivate for preferred site, activity and technology alternative**

As mentioned above, at this stage, funding for the entire development (As is described in Alternative 1) is not available. It is better to start with a small portion of the development than to discard the entire development. As far as the go-go option is concerned, Informal settlements consist of non-conventional housing built without complying with legal building procedures. Broadly, these crude dwellings mostly lack proper indoor infrastructure, such as water supply, sanitation, drainage, waste disposal and proper road access. There is also a bond between poor housing and environmental conditions in informal settlements which also reflects poverty. Linking

basic services such as water to health is viewed as a false separation as these services are 'intimately related to housing'. It becomes a housing issue if children playing outside the house contract diarrhoea via ingesting pathogens from faecal matter which contaminates the land on which they play. Otherwise, it is the house which provides for shelter against injury, weather and disease. Improving the surroundings of the house is to limit severe health risks existing within poor quality housing.

8. DESCRIPTION OF THE ENVIRONMENT THAT MAY BE AFFECTED BY THE PROJECT

8.1 BIO-PHYSICAL ASPECTS

8.1.1 GEOLOGY, TOPOGRAPHY AND SOIL

The site is underlain by dark grey shale, carbonaceous shale or siltstone of the Pietermaritzburg Formation of the Ecca Group, Karoo Supergroup. Some dolerite intrusions in the form of dykes and sills are also present in the area. Locally the lithology is covered by hillwash. The topography of the site has a relatively steep to very steep north- north-easter slope from 1 049 meters above sea level in the north to 1 096 meters above sea level in the south.

Additional to local slope instability within opened trenches and the collapse of pit side walls, other slope instability of deeply weathered hillwash is expected within these relative steep areas, and the possibility of a major slope failure could be inflated during long periods of consistent rain fall. Cut and fill operations should also be concluded with proper compaction of the filling material to fit engineer's specification.

No problems are foreseen regarding the excavatability to 1,5m depth on site.

Zoning of the site revealed zones with some moderate constraints regarding the collapse potential and the compressibility of the soil.

The following zones were identified:

Engineering Geological Zonation

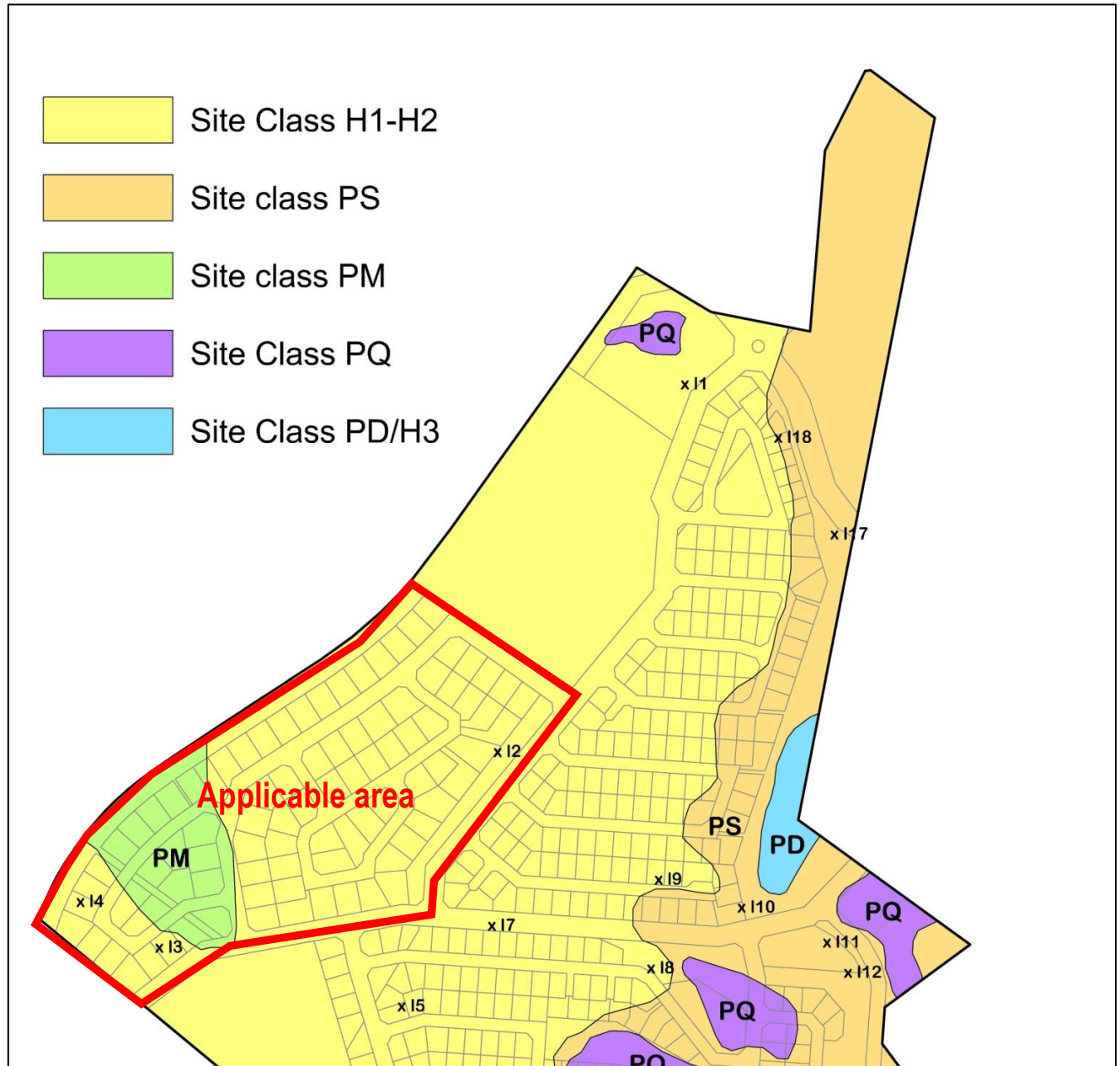
Modified Normal to Special Development:

Site Class H2-H3/C1: This zone comprises mainly of a medium expansive and compressible soil, with thickness in excess of 0,75m, and an expected range of 15 up to 30mm and even more than 30mm of total soil movement measured at surface, underlain in depth by shale or mudstone. Foundations will therefore require modified normal to special foundation techniques such as soil replacement by an engineered fill soil raft by removing all or part of the expansive horizon to 1,0m beyond the perimeter of the structure and replacing with inert backfill, compacted to 93%MOD ASSHTO density at or near optimum moisture content, where after normal strip footing foundations can be used. Special foundation techniques may also include the use of stiffened strip footings, stiffened or cellular rafts, lightly reinforced strip footings or reinforced boxed steel in slightly widened strip foundations, the use of split construction techniques or articulation joints at all internal and external doors and openings with light reinforcement (brickforce) in masonry. Site drainage, a concrete apron of 1,0m around all structures and plumbing and service precautions are advised.

It is classified as H2 to H3 / C1 in terms of the NHBRC guidelines (1995) or the SAICE Code of practice (1995) and 2A2C2D2E as per the classification for urban development (Partridge, Wood & Brink).

Site Class PM: Marshy areas due to a large diameter sewage pipe leakage must be permanently repaired and the problem solved before commencement of construction.

The zones listed above are illustrated below:



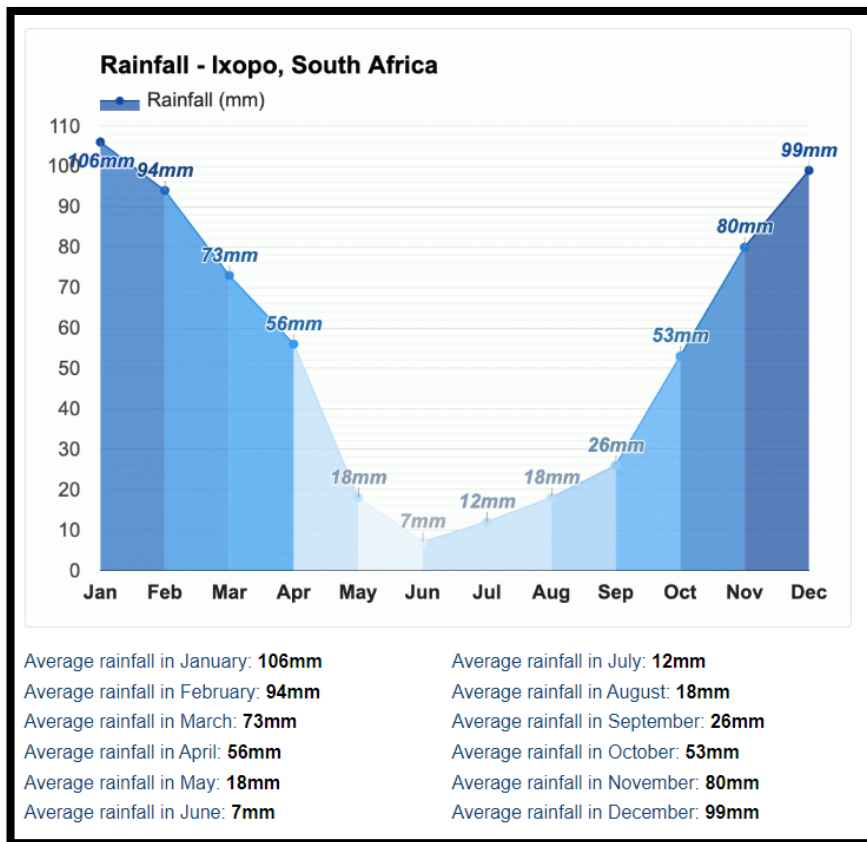
Engineering Geological Zone Map

Modified normal and special construction techniques will be required to enable proper development. This includes the use of **compaction techniques** as described.

8.1.2 CLIMATE

8.1.2.1. Rainfall

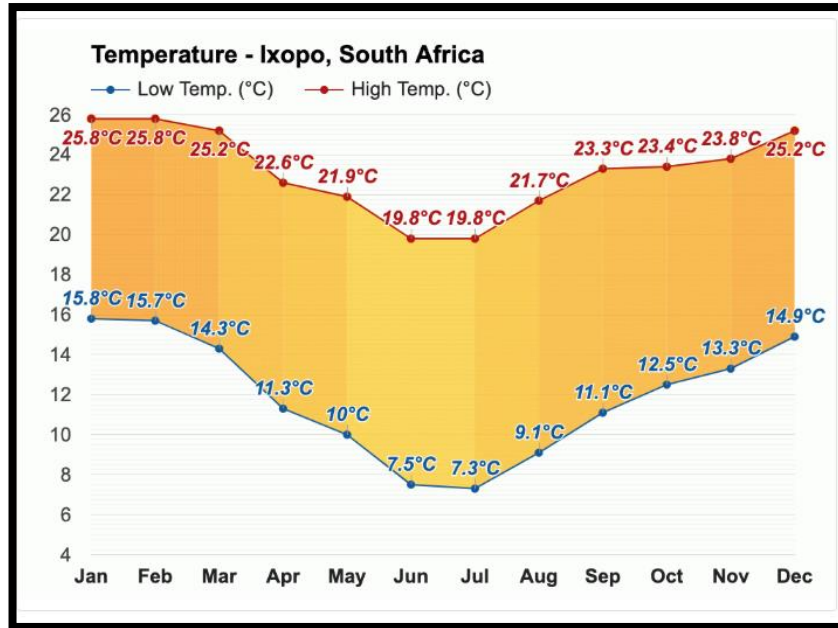
The region is characterized by summer rainfall with thunderstorms, with annual high rainfall figures of 827 mm. The wettest month (with the highest rainfall) is **January** (106mm). The driest month (with the least rainfall) is **June** (7mm)



Average rainfall statistics for Ixopo.
 (Source: <https://www.weather-atlas.com/en/south-africa/ixopo-climate#rainfall>)

8.1.2.2. Temperature

Winters are dry with no frost. The warmest months are normally December to March and the coldest months are June and July. The warmest months (with the highest average high temperature) are **January** and **February** (25.8°C). The months with the lowest average high temperature are **June** and **July** (19.8°C). The month with the highest average low temperature is **January** (15.8°C). The coldest month (with the lowest average low temperature) is **July** (7.3°C).



Average high temperature in January: 25.8°C	Average high temperature in July: 19.8°C
Average high temperature in February: 25.8°C	Average high temperature in August: 21.7°C
Average high temperature in March: 25.2°C	Average high temperature in September: 23.3°C
Average high temperature in April: 22.6°C	Average high temperature in October: 23.4°C
Average high temperature in May: 21.9°C	Average high temperature in November: 23.8°C
Average high temperature in June: 19.8°C	Average high temperature in December: 25.2°C

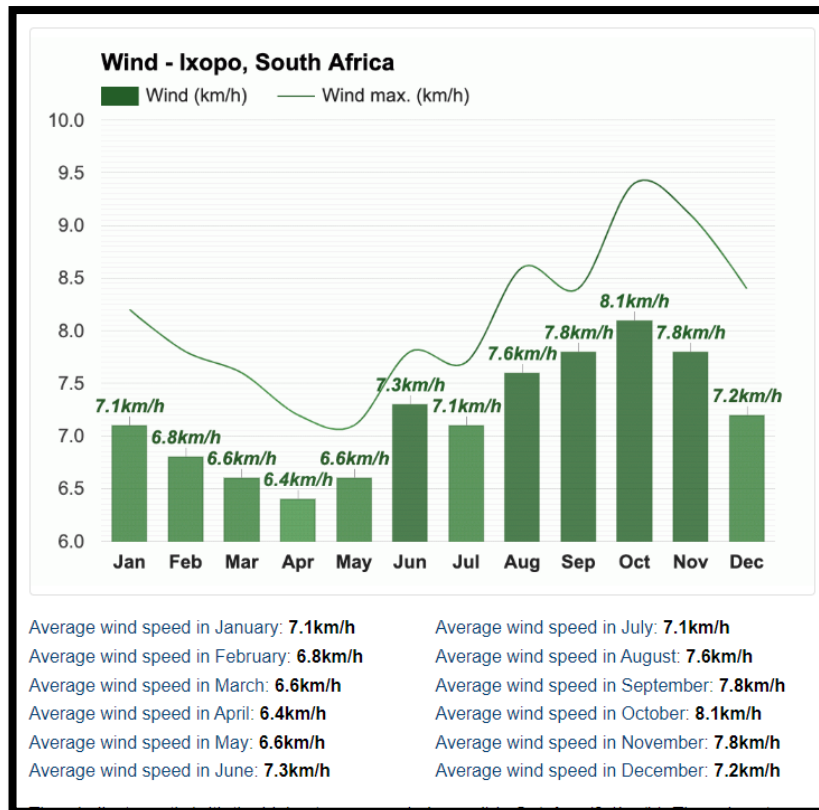
Average low temperature in January: 15.8°C	Average low temperature in July: 7.3°C
Average low temperature in February: 15.7°C	Average low temperature in August: 9.1°C
Average low temperature in March: 14.3°C	Average low temperature in September: 11.1°C
Average low temperature in April: 11.3°C	Average low temperature in October: 12.5°C
Average low temperature in May: 10°C	Average low temperature in November: 13.3°C
Average low temperature in June: 7.5°C	Average low temperature in December: 14.9°C

Average temperature statistics for Ixopo.

(Source: <https://www.weather-atlas.com/en/south-africa/ixopo-climate#rainfall>)

8.1.2.3. Wind

The windiest month (with the highest average wind speed) is **October** (8.1km/h). The calmest month (with the lowest average wind speed) is **April** (6.4km/h).



Average wind speed statistics for Ixopo.

(Source: <https://www.weather-atlas.com/en/south-africa/ixopo-climate#rainfall>)

Climate Change

(This Section has been taken from the Harry Gwala District Municipality Climate Change Vulnerability Assessment and Response Plan, March 2018, version 2. Report submitted by Urban Earth.)

Climate change is a natural phenomenon that takes place over geological time. However, over the past few decades the rate of climate change has been more rapid and the magnitude of global warming has increased dramatically (Warburton, M.L and Schulze, R 2006; Warburton, M.L 2012). This change has been attributed to increased anthropogenic greenhouse gas emissions (Koske, J and Ochieng, M.A 2013). For example, the burning of coal to generate electricity, the burning of petrol incars, some chemical processes in industries, and many farming activities all contribute to the increased concentration of greenhouse gasses in the atmosphere.

Climate change is not just an increase in average global temperatures but changes in regional climate characteristics such as rainfall, relative humidity and severe weather extremes (Davis, C.L 2011). Climate change can manifest as a shock or a stress (Ziervogel, G and Calder, R 2003). Shocks are defined as discrete, extreme events (rapid onset) such as floods, while gradual change (slow onset) such as long-term climate variability is classified as a stress (Ziervogel, G and Calder, R 2003).

The negative impacts of climate change “are already felt in many areas, including in relation to, inter alia, agriculture, and food security; biodiversity and ecosystems; water resources; human health; human settlements and migration patterns; and energy, transport and industry” (United Nations WomenWatch 2009, 1).

Harry Gwala District Municipality recognises climate change as a threat to the environment, its residents, and to future development. Therefore, measures should be implemented to reduce or eliminate carbon emissions or enhance greenhouse gas sinks (mitigation) (Böckmann, M 2015). However, due to lag times in the climate and biophysical systems, the positive impacts of past and current mitigation will only be noticeable in the next 25 years (Jiri, O 2016). In the meanwhile, adaptation is regarded as inevitable and a necessary response to the changes that are projected to take place in the District. Harry Gwala District Municipality has therefore prioritised the development of a Climate Change Vulnerability Assessment and Climate Change Response Plan. Through this program key climate change vulnerability indicators for the Harry Gwala District Municipality were identified. These indicators demonstrate areas that maybe at high risk of climate change impacts.

A summary of the key vulnerability indicators is provided in the table below.

No	Sector	Indicator Title	Exposure Answer	Sensitivity Answer	Adaptive Capacity Answer
7	Agriculture	Change in other crop production areas (e.g. vegetables, nuts, etc.)	Yes	High	Low
10	Agriculture	Increased risks to livestock	Yes	High	Low
12	Biodiversity and Environment	Loss of High Priority Biomes	Yes	High	Low
15	Biodiversity and Environment	Loss of Priority Wetlands and River ecosystems	Yes	High	Low
25	Human Health	Increased malnutrition and hunger as a result of food insecurity	Yes	High	Low
32	Human Settlements, Infrastructure and Disaster Management	Increased migration to urban and peri-urban areas	Yes	High	Low
33	Human Settlements, Infrastructure and Disaster Management	Increased risk of wildfires	Yes	High	Low
37	Water	Less water available for irrigation and drinking	Yes	High	Low
38	Water	Increased impacts of flooding from litter blocking storm water and sewer systems	Yes	High	Low

Key Vulnerability indicators for Harry Gwala District Municipality

Based on the key indicators identified in the table above, the following objectives and projects are prioritised as a response to each of the indicators.

Agriculture

The Harry Gwala District Municipality's agricultural sector will be adversely affected by climate change. Increased temperatures, drought, and the increase in frequency and severity of storm events will impact on the crops that can be grown and potentially result in a loss of livestock.

Biodiversity and Environment

Climate change predictions include the shifting of biomes across South Africa. In the Harry Gwala District Municipality, it is projected that, with the changes in climate under a high-risk scenario, the Savanna biome

will replace large areas of the Grassland biome. Terrestrial, wetland, and river ecosystems and their associated species will be negatively impacted. Furthermore, development and changes in land use will impact negatively on the environment in the District.

Human Health

Climate change impacts affect the social and environmental determinants of health and will therefore affect human health in several ways in the Harry Gwala District Municipality. Projected temperature increases due to climate change will negatively affect the young and elderly population of the district. People working in the informal sector usually work outdoors and are therefore exposed to all weather elements and are particularly vulnerable to temperature increases.

Disaster Management, Infrastructure and Human Settlements

Climate change impacts will affect Disaster Management, Infrastructure and Human Settlements in several ways in Harry Gwala District Municipality. Increases in the severity of storm events and increase in flooding will damage infrastructure which may result in a loss of industrial productivity and service delivery disruptions. The impacts of storm events will particularly affect communities located in informal settlements, on flood plains and where there is poor drainage infrastructure. In addition, communities in rural areas that depend on subsistence farming may be unable to grow crops that they have grown in the past due to the changing climate. It is predicted that there will therefore be an increase in rates of rural-urban migration. Rural communities may also become more physically isolated due to extreme events impacting on key infrastructure.

Water

Water resources are the primary medium through which climate change impacts will be felt by South Africans (Schulze et al., 2014). Climate change will affect Harry Gwala District Municipality's water accessibility, quantity, and quality (Parikh, J 2007). Drought, reduced runoff, increased evaporation, and an increase in flood events will impact on both water quality and quantity.

Cross-Cutting

The projected impacts of climate change for Harry Gwala District could ultimately negatively impact the economy of district. Since the Agricultural sector is an important contributor to the district economy and the projected impacts of climate change on agriculture could negatively impact on the district economy. It should also be noted that the project impacts of climate change could also negatively impact on the finances of the municipality. For instance, water shortages will require the implementation of demand management measures by the district resulting in lower water sales.

Sector Response Plans

The section below summarises responses that have been identified by the Harry Gwala District Municipality to address the key vulnerabilities that is applicable to this proposed development.

Biodiversity and Environment

Overview of Key Issues

Biodiversity is crucial to ecosystem health, and healthy ecosystems are central to human well-being. Healthy ecosystems interlinked with working landscapes and other open spaces form the ecological infrastructure of the country and are the foundation for clean air and water, fertile soil and food. All South Africans depend on healthy ecosystems for economic and livelihood activities, including agriculture, tourism and a number of income generating and subsistence level activities. These natural ecosystems are under pressure from land use change and related processes causing degradation, as well as invasive alien species. Accelerated

climate change (resulting in increasing temperature, rising atmospheric CO2 and changing rainfall patterns) is exacerbating these existing pressures.

Well-functioning ecosystems provide natural solutions that build resilience and help society adapt to the adverse impacts of climate change. This includes, for example, buffering communities from extreme weather events such as floods and droughts, reducing erosion and trapping sediment, increasing natural resources for diversifying local livelihoods, providing food and fibre, and providing habitats for animals and plants which provide safety nets for communities during times of hardship. Sustainably managed and/or restored ecosystems help in adapting to climate change at local or landscape level.

Objectives

The following objectives have been identified through the LGCCSP as priority areas for the biodiversity sector in the District Municipality

- Manage Loss of High Priority Biomes
- Manage Loss of Priority Wetlands and River ecosystems

Human Health

Overview of Key Issues

South Africa faces complex and pressing public health challenges exacerbated by adverse socio-economic conditions including dense informal settlements which constrain effective service delivery. These health challenges include a disease complex with the highest global prevalence of Human Immunodeficiency Virus (HIV) and tuberculosis (TB), complicated by water-borne and chronic respiratory disease.

Under-nutrition and socio-economic stress are important contributors to poor human resilience and contribute to conditions that facilitate the emergence and propagation of disease. Malnutrition and disease interact strongly, and there is a key relationship between environmental quality, foodsecurity, and the disease burden of communities. Adaptation to the potential effects of climate change on human health is viewed in this context. However, significant knowledge and information gaps are preventing well supported quantitative projections of human health impacts in South Africa.

Objectives

The following objectives have been identified through the LGCCSP as priority areas for the biodiversity sector in the District Municipality

- Manage increased malnutrition and hunger as a result of food insecurity

Disaster Management, Infrastructure and Human Settlements

Overview of Key Issues

South Africa is a diverse country, not just in terms of populations and biodiversity, but also in terms of its human settlements. These settlements face severe challenges, even before climate change is taken into account. The implications of the compounding impacts of climate change will be profound, and human settlements therefore represent a crucial part of national adaptation strategies. The overarching strategic framework for the development of human settlements is described in the National Development Plan (NDP) and, more specifically in relation to the implications for climate change, in the National Climate Change Response White Paper (NCCRWP).

However, to develop appropriate adaptation responses a more nuanced understanding of the challenges and options for human settlements is required, building on the insights of the NCCRWP. This understanding

needs to take into account the unusually diverse urban forms of human settlement in the South African context, and the importance of ecological infrastructure in supporting service delivery and building resilient communities.

Objectives

The following objectives have been identified through the LGCCSP as priority areas for the biodiversity sector in the District Municipality

- Manage potential increase migration to urban and peri-urban areas.
- Manage potential increased risk of wildfires

Water

Overview of Key Issues

South Africa's climate is generally arid to semi-arid, with less than 9% of annual rainfall ending up in rivers, and only about 5% recharges groundwater in aquifers. In addition, rainfall and river flow are unpredictable in time and unevenly distributed in space, with only 12% of the land area generating 50% of stream flows. Decadal rainfall variability also results in extended dry and wet periods across the country. The main users of surface water resources are agricultural irrigation, domestic, industrial, mining and power generation, while plantation forestry intercepts and reduces runoff before it reaches the rivers and groundwater.

Surface water resources were already over-allocated by the year 2000 in five of nineteen water management areas historically used for water planning and management purposes. The potential demand for water is expected to increase with economic growth, increased urbanisation, higher standards of living, and population growth. Because of the critical importance of water in the South African economy the country has a sophisticated water resources planning capacity, founded on a good understanding of the country's variable rainfall. This planning capacity will be a key capability for adaptation planning under ongoing and future climate change.

Objectives

The following objectives have been identified through the LGCCSP as priority areas for the biodiversity sector in the District Municipality

- Manage the quantity of water available for irrigation and drinking
- Manage the increased impacts of floods due to litter blocking the sewer system

Cross-Cutting

Overview of Key Issues

The projected impacts of climate change for Harry Gwala District could ultimately negatively impact the economy of district. Since the Agricultural sector is an important contributor to the district economy and the projected impacts of climate change on agriculture could negatively impact on the district economy as a whole. It should also be noted that the project impacts of climate change could also negatively impact on the finances of the municipality. For instance, water shortages will require the implementation of demand management measures by the district resulting in lower water sales.

Climate change is a relatively new field in South Africa and research on economic impact of climate change is required for the field to get the attention that is needed.

Objectives

The following objectives have been identified through the LGCCSP as priority areas for the biodiversity sector in the District Municipality

- Generate knowledge and disseminate information on climate change

8.1.3 SURFACE DRAINAGE

The site is situated within the Mvoti to Umzimkulu Water Management Area, within the U10K quaternary catchment. The site is located within the uMkhomazi river catchment, more specifically to a non-perennial tributary to the Xobho river draining through the town of Ixopo. The uMkhomazi river rises in some of the highest eastwards-facing slopes of the Drakensberg mountains, near the mighty Thabana Ntlenyana. The river flows southeast wards towards the Indian Ocean, which it enters through a navigable estuary at Umkomaas, about 40 km southwest of Durban. Its main tributaries are the Loteni, Nzinga, Mkomazane, Elands and the Xobho River. Presently the only dam in this catchment is the Ixopo Dam.

Plate flow is the dominant drainage pattern on the site and no streams are found on site. The natural topography of the site is relatively steep to very steep. A few dominant drainage patterns exist adjacent to the site that drains mainly in a north easterly direction towards the uMkhomazi river. The site is mainly covered by grassland field with informal settlements and currently drains as surface runoff across the site towards the earth channel located along R56 on the western boundary of the site. Please see Figure 12. The development is expected to increase the stormwater runoff since new hard surfaces will be constructed and therefore storm water systems must be designed to have minimal impact on the environment, through the careful implementation of sustainable drainage systems (SuDS) and stormwater management systems.



Figure 12 Indication of ditch that serves as stormwater canal at present.

Red outline Study area

Absence of wetlands

Wetlands such as floodplain wetlands, channelled valley-bottom wetlands, unchannelled valley-bottom wetlands, depressions, seeps and wetland flats appear to be absent at the site. No wetlands are found at the site.

8.1.4 GROUND WATER

No seepage but the presence of perennial fluctuations of ground water were encountered on site, proving that a seasonal perched water table exist. A ferruginised profile indicates that some perennial water level fluctuations occur. Ground water in the form of seepage was not intersected in any test pits during the investigation, but some problems are foreseen and normal water tightening techniques such as damp course on foundation levels are required. The expected high permeability of the silty sand may lead to leachate from sanitation systems to reach the ground water, and a closed water borne sewage system is recommended.

Possible infiltration into the groundwater must be taken into account. During the construction phase, no spills of lubricants or construction worker sewage should be allowed to pollute the ground water. During the operational phase, fuel storage tanks must also not pollute groundwater. These aspects are addressed in the EMP.

8.1.5 FLORA AND FAUNA

The study area is situated at the Grassland Biome (Mucina & Rutherford 2006). The Grassland Biome at the site is represented by Midlands Mistbelt Grassland (Gs 9) (Mucina & Rutherford 2006). The Midlands Mistbelt Grassland (Gs 9) vegetation type is listed as a Threatened Ecosystem, Vulnerable, according to the National List of Threatened Ecosystems (2011). A brief overview of the vegetation type, which serves as an outline of the ecological context of the site, follows.

Gs 9 Midlands Mistbelt Grassland

Distribution: In South Africa the Midlands Mistbelt Grassland is found in the KwaZulu-Natal and Eastern Cape Provinces. In the KwaZulu-Natal Midlands the vegetation type is scattered in a broad belt in the form of several major patches including the Melmoth-Babanango area, Kranskop and Greytown, Howick Lions River, Karkloof, Balgowan, Cedara, Edendale, Hilton, Richmond, Ixopo-Highflats area, Mount Malowe in the Umzimkulu enclave of the Eastern Cape Province and the Harding-Weza area. The southwesternmost section in the Eastern Cape Province falls in the Bulemnu, Gxwaleni, Longweni and Flagstaff areas. Altitude ranges from 760 m – 1400 m (Mucina & Rutherford, 2006).

Vegetation and landscape features. Hilly and rolling landscape mainly associated with a discontinuous east-facing scarp formed by dolerite intrusions (south of the Thukela River). Dominated by forb-rich, tall, sour Themeda triandra grasslands transformed by the invasion of native 'Ngongoni grass (Aristida junciformis). Only a few patches of the original species-rich grasslands remain (Mucina & Rutherford, 2006).

Geology and soils. Apedal and plinthic soil forms derived mostly from Ecca Group (Karoo Supergroup) shale and minor sandstone and less importantly from Jurassic dolerite dykes and sills. Dominant land type Ac, followed by Fa (Mucina & Rutherford, 2006).

Climate: Summer rainfall, with MAP of 915 mm, range 730-1280 mm. Heavy and frequent occurrence of mist provides significant amounts of additional moisture (Cedara near Pietermaritzburg has 46 misty days per year). Some of the rain is in the form of cold frontal activity, mainly in winter, spring and early summer. Thunderstorms are common in summer and autumn (Cedara: 60 days of thunderstorms per year). Frosts are generally moderate, but occasional severe frost may also occur (Mucina & Rutherford, 2006).

Important plant taxa: Graminoids: *Andropogon appendiculatus*, *Aristida junciformis* subsp. *galpinii*, *Diheteropogon filifolius*, *Eragrostis plana*, *Hyparrhenia hirta*, *Sporobolus africanus*, *Themeda triandra*, *Tristachya leucothrix*, *Alloteropsis semialata* subsp. *eckloniana*, *Andropogon schirensis*, *Brachiaria serrata*, *Cymbopogon ceasius*, *Cymbopogon nardus*, *Digitaria diagonalis*, *Digitaria tricholaenoides*, *Diheteropogon amplexans*, *Elionurus muticus*, *Eragrostis capensis*, *Eragrostis curvula*, *Eragrostis racemosa*, *Eulalia villosa*, *Harpochloa falx*, *Heteropogon contortus*, *Loudetia simplex*, *Microchloa caffra*, *Monocymbium ceresiiforme*, *Panicum aequinerve*, *Panicum ecklonii*, *Panicum natalense*, *Paspalum dilatatum*, *Paspalum scrobiculatum*, *Paspalum urvillei*, *Setaria nigrirostris*, *Setaria sphacelata*, *Sporobolus centrifugus*, *Trachypogon spicatus*. Herbs: *Acalypha glandulifolia*, *Acanthospermum australe*, *Berkheya rhapontica* subsp. *aristosa*, *Berkheya setifera*, *Commelina africana*, *Conyza pinnata*, *Eriosema salignum*, *Helichrysum cephaloideum*, *Helichrysum simillimum*, *Indigostrum fastigiatum*, *Kohautia amatymbica*, *Nidorella auriculata*, *Pentanisia prunelloides* subsp. *latifolia*, *Sebaea sedoides* var. *schoenlandii*, *Spermacoce natalensis*, *Thunbergia atriplicifolia*, *Vernonia dregeana*, *Vernonia natalensis*, *Wahlenbergia undulata*. Herbaceous climber: *Vigna nervosa*. Geophytic herbs: *Pteridium aquilinum*, *Corycium nigrescens*, *Drimia macrocentra*, *Eriospermum ornithogaloides*, *Gladiolus ecklonii*, *Habenaria dives*, *Habenaria dregeana*, *Hypoxis multiceps*, *Hypoxis rigidula* var. *pilosissima*, *Rhodohypoxis baurii* var. *baurii*, *Rhodohypoxis baurii* var. *platypetala*, *Satyrium longicauda*. Low shrubs: *Helichrysum sutherlandii*, *Leonotis ocymifolia*, *Otholobium caffrum*.

Note: The above is an outline of the vegetation type that serves as a larger ecological context within which the site occurs. Not all the plant species listed above for the vegetation type necessarily occur at the site.

Habitat and vegetation characteristics found on site

Extensive covers of alien invasive plant species are conspicuous at the site. Vegetation is transformed at parts of the site, owing to residences, and at other parts, modified or degraded. Indigenous grass species at the site include *Aristida junciformis*, *Eragrostis curvula*, *Sporobolus africanus*, *Urochloa panicoides* and *Setaria sphacelata*. Indigenous herb species include such as *Senecio madagascariensis* and *Nidorella auriculata*. Alien invasive tree species such as *Solanum mauritianum*, *Acacia decurrens*, *Acacia mearnsii*, and *Melia azedarach* are present. The alien invasive tree *Solanum mauritianum* is in particular visibly abundant at the site. The shrubs *Lantana camara*, *Ricinus communis* and *Rubus cuneifolius* are noticeable at many parts of the site. Alien invasive grass species include *Paspalum dilatatum* and *Pennisetum clandestinum*. Numerous alien invasive herbaceous plant species occur at the site which include *Bidens pilosa*, *Amaranthus hybridus*, *Oenothera biennis*, *Plantago lanceolata*, *Galinsoga parviflora*, *Chenopodium album*, *Tagetes minuta*, *Oxalis corniculata*, *Canna indica* and *Hypochaeris radicata*.

No wetlands or rocky ridges appear to be present at the site.

Ecological disturbances at the site include residential settlements where vegetation has been transformed. Extensive informal dumping and roads with ditches where stormwater is channelled, are found at the site. Extensive and visibly dense covers of alien invasive plant species are conspicuous at the site.

ASSESSMENT OF PLANT SPECIES OF CONSERVATION CONCERN

Threatened plant species of the KwaZulu-Natal Province that are listed in the **Critically Endangered** category. The list here follows the most recent updated red list of South African plant species (Raimondo *et al.* 2009). No = Plant species is not a resident on the site; Yes = Plant species is a resident at a site.

Species	Status: Global status or national status indicated	Resident at the site
<i>Aloe saundersiae</i>	Critically Endangered	No
<i>Brachystelma natalense</i>	Critically Endangered	No
<i>Encephalartos aemulans</i>	Critically Endangered	No

Threatened plant species of the KwaZulu-Natal Province that are listed in the **Endangered** category. The list here follows the most recent updated red list of South African plant species (Raimondo *et al.* 2009, SANBI updates). No = Plant species is not a resident on the site; Yes = Plant species is a resident at a site.

Species	Status: Global status or national status indicated	Resident at the site
<i>Begonia dregei</i>	Endangered	No
<i>Eriosema populifolium</i> subsp. <i>populifolium</i>	Endangered	No
<i>Eriosema umtamvunense</i>	Endangered	No
<i>Gerbera aurantiaca</i>	Endangered	No
<i>Helichrysum pannosum</i>	Endangered	No
<i>Ocotea bullata</i>	Endangered	No
<i>Tephrosia inandensis</i>	Endangered	No

Threatened plant species of the KwaZulu-Natal Province that are listed in the **Vulnerable** category. The list here follows the most recent updated red list of South African plant species (Raimondo *et al.* 2009, SANBI updates). No = Plant species is not a resident on the site; Yes = Plant species is a resident at a site.

Species	Status: Global status or national status indicated	Resident at the site
<i>Alepidea amatymbica</i>	Vulnerable	No
<i>Asclepias woodii</i>	Vulnerable	No
<i>Asclepias concinna</i>	Vulnerable	No
<i>Aloe gerstnerii</i>	Vulnerable	No
<i>Aloe neilcrouchii</i>	Vulnerable	No
<i>Argyrobium longifalcum</i>	Vulnerable	No
<i>Asclepias concinna</i>	Vulnerable	No
<i>Brachystelma petraeum</i>	Vulnerable	No

<i>Crinum moorei</i>	Vulnerable	No
<i>Clivia gardenii</i>	Vulnerable	No
<i>Diaphanathe millarii</i>	Vulnerable	No
<i>Dierama luteo-albidum</i>	Vulnerable	No
<i>Dierama pallidum</i>	Vulnerable	No
<i>Dioscorea sylvatica</i>	Vulnerable	No
<i>Dracosciadium italae</i>	Vulnerable	No
<i>Encephalartos ghellinckii</i>	Vulnerable	No
<i>Eriosemopsis subanisophylla</i>	Vulnerable	No
<i>Gerrardanthus tomentosa</i>	Vulnerable	No
<i>Hermannia sandersonii</i>	Vulnerable	No
<i>Impatiens flanaganiae</i>	Vulnerable	No
<i>Phyllica natalensis</i>	Vulnerable	No
<i>Senecio dregeanus</i>	Vulnerable	No
<i>Sisyranthus fanniniae</i>	Vulnerable	No
<i>Stachys comosa</i>	Vulnerable	No
<i>Stangeria eriopus</i>	Vulnerable	No
<i>Woodia verruculosa</i>	Vulnerable	No

Near Threatened plant species of the KwaZulu-Natal Province. The list here follows the most recent updated red list of South African plant species (Raimondo *et al.* 2009). No = Plant species is not a resident on the site; Yes = Plant species is a resident at the site.

Species	Status: Global status or national status indicated	Resident at the site
<i>Aloe dominella</i>	Near Threatened	No
<i>Aloe linearifolia</i>	Near Threatened	No
<i>Brachystelma pulchellum</i>	Near Threatened	No
<i>Encephalartos natalensis</i>	Near Threatened	No
<i>Haemanthus deformis</i>	Near Threatened	No
<i>Merwillia plumbea</i>	Near Threatened	No
<i>Moraea hiemalis</i>	Near Threatened	No
<i>Moraea graminicola</i> subsp. <i>graminicola</i>	Near Threatened	No

Least Concern (= not threatened) plant species of the KwaZulu-Natal Province that are however of particular conservation concern and listed in the **Rare** category. The list here follows the most recent red list of South African plant species (Raimondo *et al.* 2009). No = Plant species is not a resident on the site; Yes = Plant species is a resident at the site.

Species	Status: Global status or national status indicated	Resident at the site
<i>Brunsvigia undulata</i>	Rare	No

Not threatened plant species of the KwaZulu-Natal Province which are however of conservation concern and listed in the **Declining** category. The list here follows the most recent red list of South African plant species (Raimondo *et al.* 2009). No = Plant species is not a resident on the site; Yes = Plant species is a resident at the site.

Species	Status: Global status or national status indicated	Resident at the site
<i>Acridocarpus natalitius</i>	Declining	No
<i>Adenia gummifera</i>	Declining	No
<i>Aloe cooperi</i>	Declining	No
<i>Anselia africana</i>	Declining	No
<i>Boophone disticha</i>	Declining	No
<i>Cassipourea malosana</i>	Declining	No
<i>Cryptocarya latifolia</i>	Declining	No
<i>Eucomis autumnalis</i>	Declining	No
<i>Gunnera perpensa</i>	Declining	No
<i>Rapanea melanophloeos</i>	Declining	No
<i>Sandersonia aurantiaca</i>	Declining	No

Some of the tree species of the KwaZulu-Natal Province which are not threatened but listed as **Protected Species** under the National Forests Act No. 84 of 1998, Section 15(1) (Schedule A, Notice 536 of 2018). No = Plant species is not a resident on the site; Yes = Plant species is a resident at the site.

Species	Conservation status	Resident at the site
<i>Afzelia quanzensis</i>	Protected	No
<i>Balanites maughamii</i>	Protected	No
<i>Barringtonia racemosa</i>	Protected	No
<i>Boscia albitrunca</i>	Protected	No
<i>Breonadia salicina</i>	Protected	No
<i>Bruguiera gymnorrhiza</i>	Protected	No
<i>Catha edulis</i>	Protected	No
<i>Ceriops tagal</i>	Protected	No
<i>Cleistanthus schlechteri schlechteri</i>	Protected	No
<i>Combretum imberbe</i>	Protected	No
<i>Curtisia dentata</i>	Protected	No
<i>Elaeodendron transvaalensis</i>	Protected	No
<i>Ficus trichopoda</i>	Protected	No
<i>Lumnitzera racemosa</i> var. <i>racemosa</i>	Protected	No
<i>Mimusops caffra</i>	Protected	No
<i>Newtonia hildebrandtii</i> var. <i>hildebrandtii</i>	Protected	No

<i>Ocotea bullata</i>	Protected	No
<i>Pittosporum viridiflorum</i>	Protected	No
<i>Podocarpus falcatus</i>	Protected	No
<i>Podocarpus henkelii</i>	Protected	No
<i>Podocarpus latifolius</i>	Protected	No
<i>Prunus africana</i>	Protected	No
<i>Pterocarpus angolensis</i>	Protected	No
<i>Rhizophora mucronata</i>	Protected	No
<i>Sclerocarya birrea</i> subsp. <i>caffra</i>	Protected	No
<i>Sideroxylon inerme</i> subsp. <i>inerme</i>	Protected	No
<i>Warburgia salutaris</i>	Protected	No

ASSESSMENT OF VERTEBRATE SPECIES OF CONSERVATION CONCERN

Mammals of particular high conservation priority

Threatened mammal species of the KwaZulu-Natal Province. Literature sources: Friedman & Daly, (2004), Skinner & Chimimba (2005), Child *et. al.* (2017).

Species	Red Listed Status	Recorded at site during survey	Likely to be found based on habitat assessment
<i>Cercopithecus albogularis labiatus</i> Samango Monkey (EC and parts of KZN)	Vulnerable	No	No
<i>Chrysospalax villosus</i> Rough-haired golden mole	Vulnerable	No	No
<i>Clootis percivali</i> Short-eared Trident Bat	Endangered (RSA)	No	No
<i>Dendrohyrax arboreus</i> Tree Hyrax	Endangered	No	No
<i>Diceros bicornis</i> Black Rhinoceros	Critically Endangered	No	No
<i>Loxodonta africana</i> African elephant	Vulnerable	No	No
<i>Mystromys albicaudatus</i> White-tailed mouse	Endangered	No	No
<i>Neoromicia rendalli</i> Rendall's Serotine	Critically Endangered (RSA)	No	No

<i>Ourebia orebi orebi</i> Oribi	Endangered	No	No
<i>Panthera leo</i> Lion	Vulnerable	No	No
<i>Panthera pardus</i> Leopard	Vulnerable	No	No
<i>Smutsia temminckii</i> Ground Pangolin	Vulnerable	No	No

Near Threatened mammal species known to occur in the KwaZulu-Natal Province. Literature sources: Skinner & Chimimba (2005), Child *et. al.* (2017).

Species	Red Listed Status	Recorded at site during survey	Likely to be found based on habitat assessment
<i>Ceratotherium simum</i> White Rhinoceros	Near Threatened	No	No
<i>Cercopithecus albogularis erythrarchus</i> Samango Monkey (northern KZN and further north)	Near Threatened	No	No
<i>Otomops martiensseni</i> Large-eared free tailed bat	Near Threatened (Global)	No	No

Birds of particular high conservation priority

Threatened bird species of the KwaZulu-Natal. Literature sources Barnes (2000), Hockey, Dean & Ryan, P.G. (2005) and Chittenden (2007).

Species	Common name	Red Listed Status	Recorded at site during survey	Likelihood of residential status at the site: Confirmed, Highly likely, Likely, Medium possibility, Unlikely, Highly unlikely
<i>Aegypius tracheliotos</i>	Lappet-faced Vulture	Endangered	No	Unlikely
<i>Anthropoides paradiseus</i>	Blue Crane	Vulnerable	No	Highly unlikely
<i>Gypaetus barbatus</i>	Bearded Vulture	Critically Endangered (RSA)	No	Highly unlikely
<i>Anthus chloris</i>	Yellow-breasted Pipit	Vulnerable	No	Unlikely

Species	Common name	Red Listed Status	Recorded at site during survey	Likelihood of residential status at the site: Confirmed, Highly likely, Likely, Medium possibility, Unlikely, Highly unlikely
<i>Balearica regulorum</i>	Grey Crowned Crane	Endangered	No	Unlikely
<i>Bucorvis leadbeateri</i>	Southern Ground Hornbill	Vulnerable	No	Unlikely
<i>Bugeranus carunculatus</i>	Wattled Crane	Critically Endangered (RSA) Vulnerable (Global)	No	Highly unlikely
<i>Circus maurus</i>	Black Harrier	Endangered	No	Unlikely
<i>Falco biarmicus</i>	Lanner Falcon	Vulnerable	No	Unlikely
<i>Geronticus calvus</i>	Southern Bald Ibis	Vulnerable	No	Unlikely
<i>Gyps coprotheres</i>	Cape Vulture	Endangered	No	Unlikely
<i>Hirundo atrocaerulea</i>	Blue Swallow	Critically Endangered (RSA)	No	Unlikely
<i>Neotis denhami</i>	Denham's Bustard	Vulnerable	No	Highly unlikely
<i>Poicephalus robustus</i>	Cape Parrot	Vulnerable	No	Unlikely
<i>Polemaetus bellicosus</i>	Martial Eagle	Vulnerable	No	Unlikely
<i>Sagittarius serpentarius</i>	Secretarybird	Vulnerable	No	Unlikely
<i>Sarothrura affinis</i>	Striped Flufftail	Vulnerable	No	Unlikely
<i>Sarothrura ayresi</i>	White-winged Flufftail	Critically Endangered	No	Highly unlikely
<i>Stephanoaetus coronatus</i>	African Crowned Eagle	Vulnerable	No	Unlikely
<i>Therathopius ecaudatus</i>	Bateleur	Endangered (RSA)	No	Unlikely
<i>Turnix nanus</i>	Black-rumped Buttonquail	Vulnerable	No	Unlikely
<i>Tyto capensis</i>	African Grass-Owl	Vulnerable	No	Unlikely

Near Threatened bird species of the KwaZulu-Natal Province. Literature sources Barnes (2000), Hockey, Dean & Ryan, P.G. (2005) and Chittenden (2007).

Species	Common name	Red Listed Status	Recorded at site during survey	Likelihood of residential status at the site: Confirmed, Highly likely, Likely, Medium possibility, Unlikely, Highly unlikely
<i>Ciconia nigra</i>	Black Stork	Near Threatened	No	Unlikely
<i>Lioptilus nigricapillus</i>	Bush Blackcap	Near Threatened	No	Unlikely
<i>Vanellus melanopterus</i>	Black-winged Lapwing	Near Threatened	No	Unlikely
<i>Zoothera gurneyi</i>	Orange ground-thrush	Near Threatened	No	Unlikely

Reptiles of particular high conservation priority

The following table lists possible presence or absence of reptile species of particular conservation concern at the site. This list to assess the possible presence or not of reptile species of conservation concern was compiled by using mainly the source Bates, Branch, Bauer, Burger, Marais, Alexander & De Villiers (2014), that is the Atlas and Red List of South Africa, Lesotho and Swaziland.

Threatened reptile species in KwaZulu-Natal Province. Main source: Bates, Branch, Bauer, Burger, Marais, Alexander & De Villiers (2014). No = Reptile species is not a resident on the site; Yes = Reptile species is found to be resident on the site.

Species	Red Listed Status	Resident at site	Recorded at site during survey	Likely to be found based on habitat assessment
<i>Bradypodion thamnobates</i> Natal Midlands Dwarf Chameleon	Endangered	No	No	No
<i>Scelotes bourquinii</i> Bourquin's Dwarf Burrowing Skink	Vulnerable	No	No	No

Near Threatened reptile species in KwaZulu-Natal Province. Main source: Bates, Branch, Bauer, Burger, Marais, Alexander & De Villiers (2014). No = Reptile species is not a resident on the site; Yes = Reptile species is found to be resident on the site.

Species	Red Listed Status	Resident at site	Recorded at site during survey	Likely to be found based on habitat assessment
<i>Bradypodion melanocephalum</i> Black-headed Dwarf Chameleon	Near Threatened	No	No	No

Amphibian species of particular high conservation priority

Threatened frog species of the KwaZulu-Natal Province. No = Amphibian species is not a resident on the site; Yes = Amphibian species is found to be resident on the site.

Species	Threatened Status	Resident at site	Recorded at site during survey	Likely to be found based on habitat assessment
<i>Anhydrophryne ngongoniensis</i> Mistbelt Moss Frog	Endangered	No	No	No
<i>Leptopelis xenodactylus</i> Long-toed Tree Frog	Endangered	No	No	No

ASSESSMENT OF INVERTEBRATE SPECIES OF PARTICULAR CONSERVATION PRIORITY

Butterflies of particular conservation priority

Threatened butterfly species in the KwaZulu-Natal Province (Mecenero *et al.* 2020). Sources of information: Henning, Terblanche & Ball (2009), Mecenero *et al.* (2013), Mecenero *et al.* (2020). Invertebrates such as threatened butterfly species are often very habitat specific and residential status imply a unique ecosystem that is at stake.

Species	Threatened Status	Recorded at site during survey	Residential status at the site: Yes confirmed, Highly likely, Likely, Medium possibility, Unlikely, Highly unlikely
<i>Capys penningtoni</i> iNkomasi Protea Butterfly	Critically Endangered	No	Highly unlikely
<i>Chrysochrysis lyncurium</i> Tsomo Golden Opal	Vulnerable	No	Highly unlikely
<i>Chrysochrysis phosphor borealis</i> Phosphor Butterfly	Endangered	No	Highly unlikely
<i>Dingana dingana</i> Midlands Widow	Endangered	No	Highly unlikely
<i>Durbania amakosa albescens</i> Whitish Amakosa Rocksitter	Vulnerable	No	Highly unlikely
<i>Durbania amakosa flavida</i> Yellowish Amakosa Rocksitter	Endangered	No	Highly unlikely
<i>Hypolycaena lochmophila</i> Coastal Hairstreak	Vulnerable	No	Highly unlikely
<i>Iolus lulua</i> White-spotted Sapphire	Vulnerable	No	Highly unlikely
<i>Lepidochrysochrysis ketsi leucomacula</i> White-spotted Ketsi Giant Cupid	Endangered	No	Highly unlikely
<i>Lepidochrysochrysis pepredo</i> Estcourt Giant Cupid	Vulnerable	No	Highly unlikely
<i>Orachrysochrysis ariadne</i> Karkloof Cupid	Endangered	No	Highly unlikely
<i>Teriomima zuluana</i> Zulu Yellow Buff	Vulnerable	No	Highly unlikely

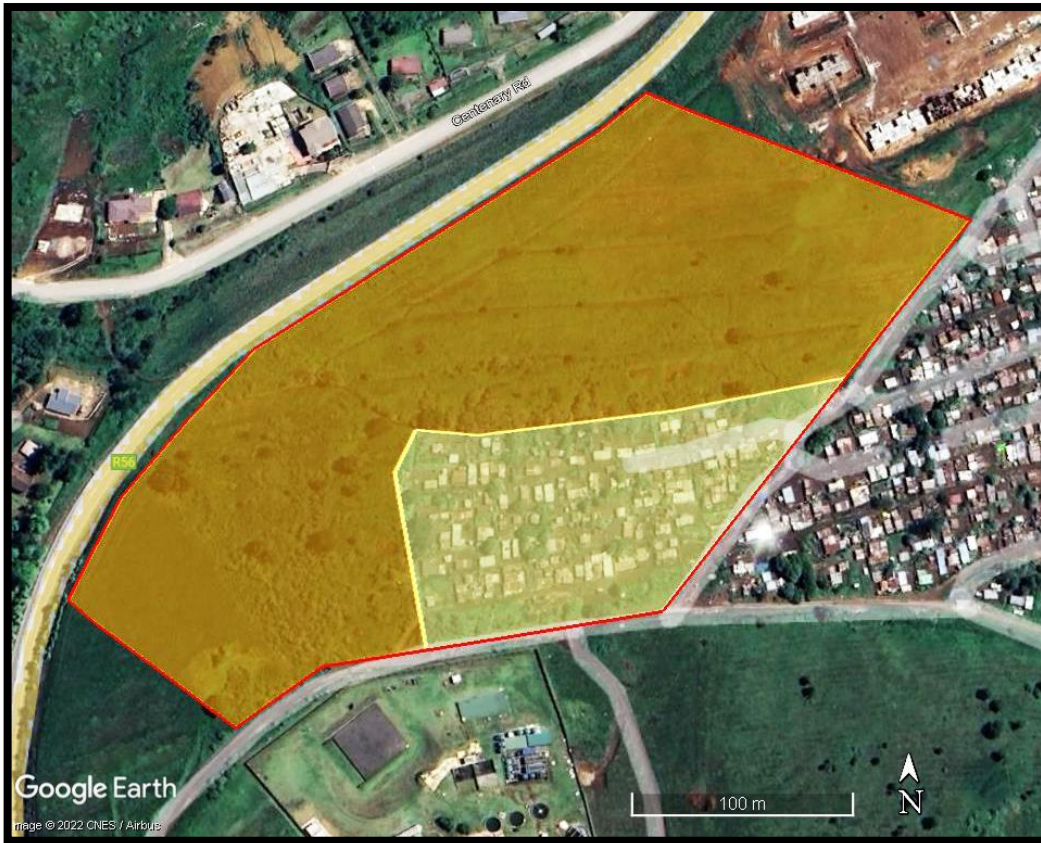
Butterfly species of the KwaZulu-Natal Province that are (Mecenero *et al.*, 2020). No = Butterfly species is unlikely to be a resident at the study area; Yes = Butterfly species is a resident at the study area. Sources of information Henning, Terblanche & Ball (2009), Mecenero *et al.* (2013), Mecenero *et al.* (2020).

Species	Threatened Status	Recorded at site during survey	Residential status at the site: Yes confirmed, Very likely, Likely, Medium possibility, Unlikely, Highly unlikely
<i>Abantis bicolor</i> Bicoloured Paradise Skipper	Near Threatened	No	Highly unlikely
<i>Dingana alaedeus</i> Wakkerstroom Widow	Near Threatened	No	Highly unlikely
<i>Metisella meninx</i> Marsh Sylph	Near Threatened	No	Highly unlikely
<i>Ornipholidotos peucetia penningtoni</i> Southern Large Glasswing	Near Threatened	No	Highly unlikely




No Threatened or Near Threatened plant- or animal species appear to be resident at the site. No other plant or animal species of particular conservation concern are likely to be found at the site.

There is little scope for the partly transformed, modified and visibly disturbed and isolated relatively small patch of grassland to be part of a conservation corridor of particular importance.

Ecological sensitivity at the parts of the site where residential settlements occur, and vegetation has been transformed, is very-low. Ecological sensitivity at the remainder of the site where vegetation is modified and where extensive and visibly dense covers of alien invasive plant species are present, is low



Indications of ecological sensitivity at the site

- | | | |
|---|----------------------------------|------------------------|
|  | Red outline | Boundaries of the site |
|  | Light yellow outline and shading | Very-low Sensitivity |
|  | Orange outline and shading | Low Sensitivity |



Photograph 8: View of dense cover of alien invasive plant species at the site.

Photo: R.F. Terblanche



Photograph 9: Flowers and foliage of the alien invasive *Solanum mauritianum* (bugweed) at the site.

Photo: R.F. Terblanche



Photograph 10: Alien invasive herb *Oenothera biennis* at the site.
Photo: R.F. Terblanche



Photograph 11: Alien invasive *Canna indica* among other plants at the site.
Photo: R.F. Terblanche

8.2. SOCIO ECONOMIC FACTORS

8.2.1. SOCIAL AMENITIES

As in the rest of South Africa, there is a housing shortage in the area. In terms of section 9(1) of the National Housing Act (107 of 1997), every municipality must, as part of the municipality's process of integrated development planning (IDP) take all reasonable and necessary steps to ensure that the inhabitants within its area of jurisdiction have access to adequate housing on a progressive basis by setting housing delivery

goals, identifying suitable land for housing development and planning, facilitating, initiating and co-ordinating housing development in its area of jurisdiction.

Housing comprises a series of complex interrelationships between people, their needs and values and resources within a political and legal environment. This complexity requires a focused approach to efforts aimed at providing housing. National Government has started to respond by putting the necessary policy and legislative environment in place.

This framework outlines the roles and responsibilities of different spheres of government in relation to housing, as well as dealing with aspects relating to the design and content of housing policy and legislation. In the context of this framework the Mamusa Local Municipality is required to take all reasonable steps to ensure the provision of adequate housing to its residents.

Various policy directions and legislation exist relating to the role and responsibilities of the different spheres of government to provide and ensure the provision of housing opportunities to affected communities.

Of these, the comprehensive plan for the Development of sustainable Human Settlements based on the Breaking New Ground Principles (BNG) forms the basis on which housing development should be implemented.

The aim is to move beyond the provision of basic shelter towards achieving the broader vision of sustainable human settlements and more efficient towns, cities and regions. The following factors will be taken into consideration in order to achieve the vision:

- Progressive Informal Settlement Eradication: These settlements must be integrated into the broader urban setup so as to overcome spatial, social and economic exclusion. The plans encourage the eradication of informal settlements through in-situ upgrading in desired locations coupled with the relocation of household where development is not possible or desirable.
- Promoting densification and Integration: The aim is to integrate previously excluded groups into the urban area so as to enable them to enjoy the benefits it offers and to create more integrated, functional and environmentally sustainable human settlements, towns and cities.
- Enhancing Spatial Planning: Greater co-ordination and alignment of various planning instruments and economic policies lies at the heart of sustainable human settlements.
- Provision of a mix of housing typologies for different income groups (Subsidised, GAP, Affordable and bonded Housing opportunities).

Enhancing the location of New Housing Projects: The location of past housing projects was said to reinforce apartheid spatial settlement patterns. Spatial restructuring aims to achieve a more decisive Intervention In land markets. The following interventions are envisaged viz. accessing well located state-owned and parastatal land: acquisition of well-located private land for housing development, funding for land acquisition and fiscal incentives

Ubuhlebezwe faces housing challenges in both the rural and urban settings of the municipality. The urban setting involves the growing of informal settlement challenges coupled with the rectification issues dealing with past housing developmental quality standards. There are also issues around the limited availability of renting spaces to house the forever growing working-class resulting in more expensive backyard renting as

the main option available. The rural context largely includes robust growth of settlement patterns as well as the rural human shelter made of informal structures which are not applicable to the general housing standards.

Multiple housing projects are underway and future housing projects have been planned for the municipality with a total housing provision of 12 609 units including the integrated residential development program, upgrading of informal settlements, housing assistance in emergency circumstances, community residential units programme and individual subsidy program. Development within or adjacent to the towns of Ixopo and UMzimkhulu have substantially been adversely impacted due to the lack of well-located land and the large backlog in providing the required bulk and connector services to support such initiatives. These issues have resulted in a backlog in housing provision in the municipality with rising slums and poor housing conditions. As such there is a definite need for housing provision in Ubuhlebezwe.

Ixopo has been identified for significant residential development which could reduce the backlog of housing provision in the municipality and improve the living condition and quality of life of residents. Ixopo is a well-located town and has been identified as a primary node for infrastructural and services expansion (including housing), a provincial priority corridor (linking internal and external nodes) and a regional connector (playing a fundamental role in connecting this municipality with other neighbouring municipalities). This places Ixopo as a prime town for residential development.

Consistent with national priorities, environmental authorities must support *"increased economic growth and promote social inclusion"*, whilst ensuring that such growth is *"ecologically sustainable"*. In the National Spatial Development Perspective (NSDP) it is highlighted that, to achieve the goal of stimulating sustainable economic activities and to create long-term employment opportunities, it is required that spending on economic infrastructure is focused in priority areas with potential for economic development, with development to serve the broader societies' needs equitably

During the construction phase, temporary employment will be created. The increased employment in the area during the construction phase will also result in increased expenditure, which, in addition, will mean that more than just the proposed jobs required for the construction on the site will be created due to economic spin-offs that will result.

8.2.2. AIR QUALITY

"The extent and toxicity of emissions is not necessarily a concise indicator of contributions to ground-level air pollution concentrations or of risks to health and the environment. Such contributions are also a function of the height of emission, temporal variations in the release of pollutants, and the proximity of the source to the people or the environment affected by exposure to the pollutant (such as, for instance, children, or the elderly, or people who are ill, or others who may be particularly sensitive receptors to a specific pollutant above a certain concentration). If an industry is operating close to a school or hospital or centre for the elderly, the potential exposure (in combination with the other contributing factors) is high.

Three factors govern the significance of household fuel-burning emissions:

(i) the low level of emissions (that is, their height above the ground is generally about 3 m, within people's breathing zone);

(ii) the simultaneous occurrence of peak emissions (during the coldest months of winter and in the early mornings and throughout the evenings) and poor atmospheric dispersion (stable atmosphere with low wind speeds, with the possible development of temperature inversions); and
(iii) the release of such emissions within high human exposure areas, given that such emissions generally occur in dense, low-income settlements where population density is high (in addition, the pollution is not only outdoors, but frequently indoors as well, due to poor ventilation, so it affects the whole family).

The significance of vehicle emissions as contributors to air-pollutant concentrations and health risks is similarly increased by the low level (close to the ground) of the emissions, and their proximity to highly populated areas – on highways, for example, with emissions being particularly high when traffic is congested. Vehicle emissions tend to peak early in the morning and in the evenings, when the potential for atmospheric dispersion is reduced (for example, wind speeds are generally low in the early mornings and evenings, reducing their potential for dispersing pollution).

Given the high volumes of pollutants emitted from fuel-burning within the industrial and power-generation sectors, their contribution to ambient concentrations and public health risks is often lower than might be expected. This is because these sources are generally characterized by constant releases, relatively high above ground level, and further away from residential settlements than are household fuel-burning and vehicle emissions.

Ranking the significance of different sources of pollution on the basis of the total emissions for which each source is responsible would, for example, place industrial emissions above household fuel-burning. If the aim is to reduce impacts on human health, however, then household fuel-burning would need to be targeted as a top priority (Scorgie et al., 2004d).

Historically, air pollution control in South Africa has primarily emphasized the implementation of ‘command and control’ measures in the industrial sector. The shift from source-based control, to the management of the air that people breathe, emphasizes the importance of targeting a wider range of sources and using more flexible and varied approaches. It means paying greater attention to ambient air quality, as it is more important (and more cost-effective, in many cases) to make sure that the ambient air complies with air quality standards. This approach ensures that human and environmental health is protected and that the cumulative impact of pollution from a number of sources is addressed.

Approaches adopted or considered for future implementation have included: regulation (for example, the use of Atmospheric Emission Licences for Listed Activities); market instruments (such as atmospheric user-charges and pollution taxes); the potential for voluntary agreements, education and awareness raising; and emissions trading. International experience shows that adopting a mix of instruments and interventions is more effective than using a single instrument to improve air quality across various types of source. Although direct regulation remains important in controlling industrial sources, there is evidence that specifying emission limits is more effective than specifying the use of particular technologies, so as to give companies flexibility in selecting the method of achieving success that suits them best. This approach is advocated as being more cost-effective and more likely to stimulate technological advances in pollution control methods and production processes.

For large point sources (that is, sources of pollution that are concentrated on one site, but that have large, constant volumes of many types of pollution) that are few in number, instruments such as emissions trading have been advocated as an effective way to manage pollutant emissions and reduce the costs of compliance.

Implementing an efficient social protection system to alleviate poverty is central to maintaining conditions that facilitate not only economic growth but also environmental sustainability. Many South African households – including those with access to electricity – use coal, wood, and paraffin, due to the relative cost-effectiveness of such fuels for heating (that is, space heating) and cooking purposes.

Many low-cost housing developments and informal settlements are located close to industrial and mining operations, as such land is both available and inexpensive. Poorer communities are more likely to suffer from poor service delivery, including inadequate waste removal that sometimes results in refuse being set alight illegally. These examples show that poverty alleviation could help to improve air quality by enabling people to choose practices that are friendlier to the environment.”

https://www.environment.gov.za/sites/default/files/docs/stateofair_airqualityand_sustainable_development.pdf Date visited: 17/03/2020.

The proposed development is planned and will eventually be developed with the above mentioned in mind. In addition to the above, it should be noted that the project will however create a certain amount of dust during the construction phase. If proper dust suppression measures are implemented this variable will have very little impact (low in intensity and significance during the construction phase).

8.2.3. NOISE

It is a fact that a certain amount of noise will be generated during the construction phase of the project. Noise levels should however rarely exceed the allowable limits. It is unlikely that the project will create any more noise during the operational phase than that already experienced on site with it being bordered by R56 Provincial road.

8.2.4. ARCHAEOLOGY AND CULTURAL SITES

A Phase 1 HIA for the proposed upgrade of an informal settlement/township area at O.R.Tambo (Ixopo), in Kwazulu-Natal was conducted successfully. The development & study area is located in the Ubuhlebezwe Local Municipality.

The project is conducted on instruction from MXN Development Construction CC in association with the Ubuhlebezwe Local Municipality (Kwazulu Natal). This project is executed by Maxim Planning Solutions (Pty) Ltd as an essential services project to upgrade the existing informal settlement area present on site and to alleviate the plight of the relevant community living in squalid conditions without basic services. The Heritage Impact Assessment services were seen as essential for the formalization process to ultimately allow for the installation of water, sewerage, stormwater and road infrastructure for this settlement area.

Background research indicated that there are a number of cultural heritage (archaeological & historical) sites and features in the larger geographical area within which the study area falls. No sites, features or material of cultural heritage (archaeological and/or historical) origin or significance were identified in the development area during the assessment.

The only site is the Cross on Medal Hill. As a known and significant landmark in Ixopo care should be taken though to not negatively impact on the site even though it is less than 60 years of age.

Although no graves or graveyards were identified in the area during the assessment, it is very likely that there would be such sites in the study area, especially associated with the both the formal and informal settlement here. Care should be taken not to impact on these sites during any development activities.

Although all efforts are made to locate, identify and record all possible cultural heritage sites and features (including archaeological remains) there is always a possibility that some might have been missed as a result of grass cover and other factors. The subterranean nature of these resources (including low stone-packed or unmarked graves) should also be taken into consideration. Should any previously 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.

From a Cultural Heritage point of view the proposed O.R.Tambo (Ixopo) upgrade of an informal settlement/township area can continue taking the above recommendations into consideration.

8.2.5 AESTHETICS

Ubuhlebezwe Local Municipality (KZ5a5) is a Category B municipality located within the Harry Gwala District Municipality (DC43). The main administrative centre of the Municipality is the town of Ixopo, which is located approximately 85km south east of Pietermaritzburg, capital of KwaZulu-Natal, and is strategically located at the intersection of four major provincial routes leading to Pietermaritzburg, the Drakensberg, the Eastern Cape and the South Coast. The town of Ixopo forms the primary development node of the Municipality and has also been selected as the seat of the Harry Gwala District Council. The importance of Ixopo cannot be underestimated in the socio-economic development of the area as a whole. Ixopo plays an important role in terms of the possible location for industry, commerce and other economic activity. It is a major education and health centre and assists in the diffusion of new ideas and technologies to the rural areas. It is also the primary base for the operation of many departments and service providers.

The proposed development is located within the Urban area of Ixopo approximately 700 meters from the CBD (as the crow flies) and towards the south of the Provincial Route (R56) between Pietermaritzburg (approximately 85 km from Pietermaritzburg) and Kokstad (approximately 110 km from Kokstad). Please see Photograph 1. The site is bordered by the Ixopo water treatment plant towards the South, a formal Residential development towards the North and informal settlement towards East. A portion of the site currently lies vacant while almost a third of the site is occupied by the Choc City / Shayamoya informal settlement.

Ecological disturbances at the site include residential settlements where vegetation has been transformed. Extensive informal dumping and roads with ditches where stormwater is channelled, are found at the site. Extensive and visibly dense covers of alien invasive plant species are conspicuous at the site.

Visual Intrusion is defined as the level of compatibility or congruence of the project with the particular qualities of the area, or its 'sense of place'. This is related to the idea of context and maintaining the integrity of the landscape or townscape.

High visual intrusion – results in a noticeable change or is discordant with the surroundings;

Moderate visual intrusion – partially fits into the surroundings, but clearly noticeable;

Low visual intrusion – minimal change or blends in well with the surroundings.

The proposed development will change the scenic resources of the local area from an undeveloped site to a formal residential area. The visual intrusion is considered to be moderate as the proposed development partially fits into the surroundings but will be clearly noticeable.

The proposed development will require additional lighting on and in buildings and possibly along roads. This will change the night landscape from unlit to lit.

9. ENVIRONMENTAL IMPACT ASSESSMENT

9.1 ASSESSMENT CRITERIA

Impacts were rated using the following methodology:

Nature of the potential impact		Description of the effect, and the affected aspect of the environment
Duration (time scale)	Short term	Up to 5 years

Nature of the potential impact		Description of the effect, and the affected aspect of the environment
	Medium term	6 – 15 years
	Long term	More than 15 years
Extent (area)	Local	Confined to study area and its immediate surroundings
	Regional	Region (cadastral, catchment, topographic)
	National	Nationally (The country)
	International	Neighboring countries and the rest of the world.
Magnitude (Intensity)	Low	Site-specific and wider natural and/or social functions and processes are negligibly altered. ((A low intensity impact will not affect the natural, cultural, or social functions of the environment).
	Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way. (Medium scale impact will alter the different functions slightly).
	High	Site-specific and wider natural and/or social functions and processes are severely altered. (A High intensity impact will influence these functions to such an extent that it will temporarily or permanently cease to exist).
Probability	Improbable	Possibility of occurrence is very low. (Such an impact will have a very slight possibility to materialise, because of design or experience).
	Possible	There is a possibility that the impact will occur
	Probable	It is most likely that the impact will occur
	Definite	The impact will definitely occur
Significance	Insignificant	Impact is negligible and will not have an influence on the decision regarding the proposed activity (No mitigation is necessary)
	Very Low	Impact is very small and should not have any meaningful influence on the decision regarding the proposed activity (No mitigation is necessary)
	Low	The impact may not have a meaningful influence on the decision regarding the proposed activity (No mitigation is necessary)
	Medium	The impact should influence the decision regarding the proposed activity (The project can only be carried through if certain mitigatory steps are taken)
	High	The impact will influence the decision regarding the proposed activity
	Very High	The proposed activity should only be approved under special circumstances
Reversibility	Low	There is little chance of correcting the adverse impact
	Medium	There is a moderate chance of correcting the adverse impact
	High	There is a high chance in correcting the adverse impact

Nature of the potential impact		Description of the effect, and the affected aspect of the environment
Risk	Low	Assessing a risk involves an analysis of the consequences and likelihood of a hazard being realized. In decision-making, low-consequence / low-probability risks (green) are typically perceived as acceptable and therefore only require monitoring.
	Medium	Other risks (amber) may require structured risk assessment to better understand the features that contribute most to the risk. These features may be candidates for management
	High	High-consequence / high-probability risks (red) are perceived as unacceptable and a strategy is required to manage the risk.

Attributes associated with the alternatives were assessed and is outlined below:

Geographical attributes

The Geographical attributes of an area relates to the characteristics of a particular region, area or place. It influences the determination of site alternatives as it relates to the location of a site in relation to relevant features in the area.

Physical attributes

Physical attributes of an area relates to the processes and patterns in the natural environment. For the purpose of this assessment, the following processes and patterns have been investigated. Geology, soil, topography and landforms, climate and meteorology, surface water and ground water.

Biological attributes

Biological attributes for the purpose of this study includes the distribution of species and ecosystems in geographic space and through geological time. Organisms and biological communities often vary in a regular fashion along geographic gradients of latitude, elevation, isolation and habitat area. The two main branches assessed will be:

Phytogeography is the branch of biogeography that studies the distribution of plants.

Zoogeography is the branch that studies distribution of animals.

Social attributes

Social attributes is closely related to social theory in general and sociology in particular, dealing with the relation of social phenomena and its spatial components.

Economic attributes

Economic attributes includes the location, distribution and spatial organization of economic activities and also takes into account social, cultural, and institutional factors in the spatial economy of the development.

Heritage attributes

The broad generic term Cultural Heritage Resources refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of paleontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

Cultural attributes

Cultural attributes relates to the specific characteristics such as language, religion, ethnic and racial identity, and cultural history & traditions of people. These attributes influences family life, education, economic and political structures, and, of course, business practices.

It should be noted that the above mentioned attributes do not occur in isolation and it is not uncommon for an identified impact to overlap with two or more of these attributes. Also note, not all risks require comprehensive and detailed assessment. Solid problem formulation should allow decision-makers to evaluate the extent of subsequent analysis required. The level of effort put into assessing each risk should be proportionate to its significance and priority in relation to other risks, as well as its

complexity, by reference to the likely impacts. Consideration should be given to stakeholders' perceptions of the nature of the risk.

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
PREFERRED ALTERNATIVE: Township establishment consisting of 88 "Residential 3" Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.					
Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
DIRECT IMPACTS:					
Geographical Physical Social Economic	5,0534 hectares (of which 31 292 m ² is located within a CBA) of indigenous vegetation will be cleared in order to establish the development.	Duration	Long term	Obtain the necessary environmental authorization for the development.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High
		Probability	Definite	Conduct a Fauna and Flora Habitat survey to determine the sensitivity of the area.	Definite
		Significance	Medium		Medium
		Reversibility	Low		Low
		Risk	Low	Implement the mitigation measures as described in the Environmental Management Plan.	Medium
	Inadequate planning for water and sewerage infrastructure resulting in a shortage of supply to the proposed development.	Duration	Long term	Appoint a Civil Engineer to assess the availability and design of services to ensure a sustainable development.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Low		Low
		Risk	Low		Medium
	Disturbed surfaces which can lead to erosion and dust pollution.	Duration	Short term	Start the rehabilitation of disturbed surfaces as soon as possible. Spray bare surfaces with water to prevent dust pollution. Prepare method statements to this effect.	Medium term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Invader plant species which are likely to invade disturbed areas.	Duration	Short term	Start the extermination of any invasive species as soon as possible and maintain the eradication programme.	Medium term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Low
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
Poor provision and maintenance of ablation facilities for construction workers may cause pollution of surface and underground water.	Duration	Short term	Provide portable ablation facilities that will not cause pollution during the construction phase. There should be 1 Chemical toilet for every 30 workers on site.	Short term	
	Extent	Local		Local	
	Magnitude (Intensity)	Medium		Medium	
	Probability	Definite		Definite	
	Significance	Medium		Medium	
	Reversibility	High		High	
	Risk	Low		Medium	
	Duration	Long term	Properly plan the construction phase in such a manner that impacts on the soil	Long term	
	Extent	Local		Local	

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)						
PREFERRED ALTERNATIVE: Township establishment consisting of 88 "Residential 3" Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.						
Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)	
	Possible impacts that the project can have on the soil and geology.	Magnitude (Intensity)	Low	and geology of the area can be minimised. The findings of the Geotechnical Engineer must be incorporated into the design of the project.	Medium	
		Probability	Definite		Definite	
		Significance	Medium		Medium	
		Reversibility	High		High	
		Risk	Low		Medium	
	Un planned removal of vegetation (which will lead to the destruction of faunal and floral habitats) during the construction phase.	Duration	Short term	Start with the rehabilitation of vegetation to minimize the negative effects of the removal of plants. The rule must be to minimize the disturbance of animal life by keeping the footprint as small as possible. No snares may be set.	Short term	
		Extent	Local		Local	
		Magnitude (Intensity)	Medium		Medium	
		Probability	Definite		Definite	
		Significance	Medium		Medium	
		Reversibility	High		High	
		Risk	Low		Medium	
	Open trenches will cause a danger of collapse on people or on equipment and people-especially small children who may fall into it.	Duration	Short term	Ensure that the trenches are dug according to specifications as prescribed by the Civil Engineer. Ensure that the trenches stay open for as short a time as possible. Ensure that open trenches are demarcated as required by the Occupational Health and Safety Act.	Short term	
		Extent	Local		Local	
		Magnitude (Intensity)	Medium		Medium	
		Probability	Definite		Definite	
		Significance	Medium		Medium	
		Reversibility	High		High	
		Risk	Low		Medium	
	Indirect impacts:					
	Geographical Physical Social Economic	Dust generation from the proposed project will impact on the surrounding area.	Duration	Short term	Spray water on open surfaces to ensure that dust does not cause air pollution during construction. This provision of equipment and conditions must form part of the Tender documents Start the rehabilitation of disturbed surfaces as soon as possible	Short term
Extent			Local	Local		
Magnitude (Intensity)			Low	Low		
Probability			Probable	Probable		
Significance			Medium	Medium		
Reversibility			High	High		
Risk			Low	Medium		
Poor handling of spills of lubricants / oils that can take place on bare soil.		Extent	Local	Prevent spills of lubricants/oils that can take place on bare soil. This will include the use of drip trays for vehicles that are standing for more than 24 hours. This provision of equipment must form part of the Tender documents. Ensure that all construction vehicles are in good working order and not leaking oil and or fuel. No vehicles may be serviced on site.	Local	
		Magnitude (Intensity)	Low		Low	
		Probability	Probable		Probable	
		Significance	Medium		Medium	
		Reversibility	High		High	
		Risk	Low		Medium	

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)

PREFERRED ALTERNATIVE: Township establishment consisting of 88 “Residential 3” Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.

Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
	Waste materials such as glass, plastic, metal or paper which may present a possible pollution hazard	Extent	Local	Implement the management plan to ensure that: All construction rubble is disposed of in a safe and environmentally acceptable manner. NO concrete, gravel or other rubbish will be allowed to remain on site after the construction phase. All cement is housed as to prevent spills (due to rain and or handling errors). NO glass, plastic, metal, or paper shall be allowed to pollute the area.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Possible social and environmental problems that may be experienced as a result of non-compliance to the relevant legislation.	Extent	Local	Ensure that contractors (construction phase) abide by all the requirements of the Occupational Health and Safety Act. Ensure that all contractors are aware of the consequences of non-compliance to the relevant legislation regarding the above-mentioned act as well as with regard to the environment (acts, regulations, and special guidelines).	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	New employment opportunities will be created. Local labour and local skills development will take place.	Extent	Local	No mitigation measures needed apart from the fact that contractors will have to ensure that they abide to the requirements of the Occupational Health and Safety Act and the Employment Equity Act.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Medium		Medium
		Risk	Low		Medium
Cumulative impacts:					
Geographical Physical Social Economic	The development will ensure the social well-being of the community for which the development is intended	Extent	Local	Ensure that the development is constructed as planned. The demand for housing will be partially addressed in the area.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Medium		Medium
		Risk	Low		Medium
	Services (Solid waste, bulk water supply water, sewage, electricity and storm water) are designed and constructed in such a manner that it will not cause Environmental degradation.	Extent	Local	Appoint a Civil Engineer to assess the availability and design of services to ensure a sustainable development. Ensure that the development is constructed as planned.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	High		High
		Risk	Low		Medium
	Extent	Local		Local	

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
PREFERRED ALTERNATIVE: Township establishment consisting of 88 “Residential 3” Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.					
Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
	Increase in traffic volumes that will result from the proposed development	Magnitude (Intensity)	Medium	The Town and Regional Planner will have to design the layout of the development in such a way that accessibility will not become a problem.	Medium
		Probability	Definite		Definite
		Significance	Medium		High
		Reversibility	Low		Low
		Risk	Medium		Medium
	Loss of indigenous vegetation.	Extent	Local	No mitigation measures possible.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	Low		Low
	Risk	Medium	Medium		
	Loss of Agricultural Land	Extent	Local	No mitigation measures possible.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Definite		Definite
		Significance	Low		Low
Reversibility		Low	Low		
Risk	Low	Low			

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 1: Establishment of a 30.543 hectares Township located on the Remaining Extent of Erf 175, a Portion of Erf 174 and Erf 2281 Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.					
Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
DIRECT IMPACTS:					
Geographical Physical Social Economic	30.543 hectares of indigenous vegetation will be cleared in order to establish the development.	Duration	Long term	Obtain the necessary environmental authorization for the development.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	Low		Low
	Risk	Low	Medium		
	Inadequate planning for water and sewerage infrastructure resulting in a shortage of supply to the proposed development.	Duration	Long term	Appoint a Civil Engineer to assess the availability and design of services to ensure a sustainable development.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High
		Probability	Definite		Definite
		Significance	Medium		Medium
Reversibility		Low	Low		

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)

ALTERNATIVE 1: Establishment of a 30.543 hectares Township located on the Remaining Extent of Erf 175, a Portion of Erf 174 and Erf 2281 Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.

Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
		Risk	Low		Medium
	Disturbed surfaces which can lead to erosion and dust pollution.	Duration	Short term	Start the rehabilitation of disturbed surfaces as soon as possible. Spray bare surfaces with water to prevent dust pollution. Prepare method statements to this effect.	Medium term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Invader plant species which are likely to invade disturbed areas.	Duration	Short term	Start the extermination of any invasive species as soon as possible and maintain the eradication programme.	Medium term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Low
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Poor provision and maintenance of ablution facilities for construction workers may cause pollution of surface and underground water.	Duration	Short term	Provide portable ablution facilities that will not cause pollution during the construction phase. There should be 1 Chemical toilet for every 30 workers on site.	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Possible impacts that the project can have on the soil and geology.	Duration	Long term	Properly plan the construction phase in such a manner that impacts on the soil and geology of the area can be minimised. The findings of the Geotechnical Engineer must be incorporated into the design of the project. Plan to prevent spills of lubricants/oils that can take place on bare soil. This will include the use of drip trays for vehicles that are standing for more than 24 hours.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Un planned removal of vegetation (which will lead to the destruction of faunal and floral habitats) during the construction phase.	Duration	Short term	Start with the rehabilitation of vegetation to minimize the negative effects of the removal of plants. The rule must be to minimize the disturbance of animal life by keeping the footprint as small as possible. No snares may be set.	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Open trenches will cause a danger of collapse on people	Duration	Short term		Short term
		Extent	Local		Local

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 1: Establishment of a 30.543 hectares Township located on the Remaining Extent of Erf 175, a Portion of Erf 174 and Erf 2281 Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.					
Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
	or on equipment and people-especially small children who may fall into it.	Magnitude (Intensity)	Medium	Ensure that the trenches are dug according to specifications as prescribed by the Civil Engineer.	Medium
		Probability	Definite		Definite
		Significance	Medium	Ensure that the trenches stay open for as short a time as possible.	Medium
		Reversibility	High		High
		Risk	Low		Medium
				Ensure that open trenches are demarcated as required by the Occupational Health and Safety Act.	
Indirect impacts:					
Geographical Physical Social Economic	Dust generation from the proposed project will impact on the surrounding area.	Duration	Short term	Spray water on open surfaces to ensure that dust does not cause air pollution during construction. This provision of equipment and conditions must form part of the Tender documents	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Poor handling of spills of lubricants / oils that can take place on bare soil.	Extent	Local	Prevent spills of lubricants/oils that can take place on bare soil. This will include the use of drip trays for vehicles that are standing for more than 24 hours. This provision of equipment must form part of the Tender documents.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Waste materials such as glass, plastic, metal or paper which may present a possible pollution hazard	Extent	Local	Implement the management plan to ensure that: All construction rubble is disposed of in a safe and environmentally acceptable manner. NO concrete, gravel or other rubbish will be allowed to remain on site after the construction phase. All cement is housed as to prevent spills (due to rain and or handling errors). NO glass, plastic, metal, or paper shall be allowed to pollute the area.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Possible social and environmental problems that may be experienced as a result of non-compliance to the relevant legislation.	Extent	Local	Ensure that contractors (construction phase) abide by all the requirements of the Occupational Health and Safety Act.	Local
		Magnitude (Intensity)	Medium		Medium
Probability		Probable	Probable		
Significance		Medium	Medium		

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)

ALTERNATIVE 1: Establishment of a 30.543 hectares Township located on the Remaining Extent of Erf 175, a Portion of Erf 174 and Erf 2281 Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.

Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)	
		Reversibility	High	Ensure that all contractors are aware of the consequences of non-compliance to the relevant legislation regarding the above-mentioned act as well as with regard to the environment (acts, regulations, and special guidelines).	High	
		Risk	Low		Medium	
	New employment opportunities will be created. Local labour and local skills development will take place.	Extent	Local		No mitigation measures needed apart from the fact that contractors will have to ensure that they abide to the requirements of the Occupational Health and Safety Act and the Employment Equity Act.	Local
		Magnitude (Intensity)	Medium			Medium
		Probability	Definite			Definite
		Significance	Medium			Medium
		Reversibility	Medium			Medium
Risk	Low	Medium				
Cumulative impacts:						
Geographical Physical Social Economic	The development will ensure the social well-being of the community for which the development is intended	Extent	Local	Ensure that the development is constructed as planned.	Local	
		Magnitude (Intensity)	Medium		Medium	
		Probability	Definite		Definite	
		Significance	Medium		Medium	
		Reversibility	Medium		Medium	
		Risk	Low		Medium	
	Services (Solid waste, bulk water supply water, sewage, electricity and storm water) are designed and constructed in such a manner that it will not cause Environmental degradation.	Extent	Local	Appoint a Civil Engineer to assess the availability and design of services to ensure a sustainable development.	Local	
		Magnitude (Intensity)	Medium		Medium	
		Probability	Definite		Definite	
		Significance	High		High	
		Reversibility	High		High	
		Risk	Low		Medium	
	Increase in traffic volumes that will result from the proposed development	Extent	Local	The Town and Regional Planner will have to design the layout of the development in such a way that accessibility will not become a problem.	Local	
		Magnitude (Intensity)	Medium		Medium	
		Probability	Definite		Definite	
		Significance	Medium		High	
		Reversibility	Low		Low	
		Risk	Medium		Medium	
	Loss of indigenous vegetation.	Extent	Local	No mitigation measures possible.	Local	
		Magnitude (Intensity)	Medium		Medium	
		Probability	Definite		Definite	
		Significance	High		High	
		Reversibility	Low		Low	
		Risk	Medium		Medium	
Loss of Agricultural Land	Extent	Local	No mitigation measures possible.	Local		
	Magnitude (Intensity)	Low		Low		
	Probability	Definite		Definite		
	Significance	Low		Low		
	Reversibility	Low		Low		

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 1: Establishment of a 30.543 hectares Township located on the Remaining Extent of Erf 175, a Portion of Erf 174 and Erf 2281 Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.					
Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
		Risk	Low		Low

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 2: (No-Go Option)					
Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
DIRECT IMPACTS:					
Geographical Physical Social Economic Cultural	No indigenous vegetation will be removed.	Duration	Long term	No mitigation measures required.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	Low		Low
		Risk	Medium		Medium
	No impact on the watercourses in the area.	Duration	Long term	No mitigation measures required.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	Low		Low
		Risk	Medium		Medium
	Loss of Agricultural Land	Extent	Local	No mitigation measures possible.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Definite		Definite
		Significance	Low		Low
		Reversibility	Low		Low
		Risk	Low		Low
	Indirect impacts:				
Geographical Physical Social Economic Cultural	No new employment opportunities will be created during the planning and design phase.	Extent	Local	Ensure that the development is constructed and operated as planned.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
	No skills enhancement will take place	Significance	Medium		Medium
		Reversibility	Medium		Medium
		Risk	High		High
If this option is implemented, the projected boost to the local and regional economy will not take place.					
Cumulative impacts:					

ENVIRONMENTAL IMPACT ASSESSMENT (Planning and design phase)					
ALTERNATIVE 2: (No-Go Option)					
Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
Geographical Physical Social Economic Cultural	If this option is implemented, the projected boost to the local and regional economy will not take place. No new employment opportunities will be created. No improvement to local skills development will take place. No broadened Tax base for the Ubuhlebezwe Local Municipality .	Extent	Local	Ensure that the development is constructed and operated as planned.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	High		High
		Risk	Medium		Medium

ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)					
PREFERRED ALTERNATIVE: Township establishment consisting of 88 “Residential 3” Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.					
Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
DIRECT IMPACTS:					
Geographical Physical Social Economic	5,0534 hectares (of which 31 292 m2 is located within a CBA) of indigenous vegetation will be cleared in order to establish the development.	Duration	Long term	Contractors must limit vegetation clearing to the demarcated workable corridor/site.	Long term
		Extent	Local		Local
		Magnitude (Intensity)	High		High
		Probability	Definite	Vegetation clearing must be undertaken as and when necessary.	Definite
		Significance	Medium		Medium
		Reversibility	Low		Low
		Risk	Low		Medium
			The entire construction area must not be stripped of vegetation prior to commencing construction activities.	The demarcated area must be approved by the ECO before clearing vegetation.	
			The contractor must stabilise cleared areas to prevent and control erosion and/or sedimentation of the watercourses.		
			Do not allow surface water or storm water to		

ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)

PREFERRED ALTERNATIVE: Township establishment consisting of 88 “Residential 3” Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.

Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
				become concentrated, or to flow down cut or fill slopes without erosion protection measures being in place. Berms, sand bags and hessian sheets must be used to contain all sediment, whilst energy dissipaters such as Rip-Rap must be constructed at all outflow points to prevent erosion.	
	Disturbed surfaces can lead to erosion and dust pollution.	Duration	Short term	Start the rehabilitation of disturbed surfaces as soon as possible. Spray bare surfaces with water to prevent dust pollution.	Medium term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Foreign and invader plant species are likely to invade disturbed areas.	Duration	Short term	Start the extermination of any invasive species as soon as possible and maintain the eradication programme.	Medium term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Low
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Poorly planned ablution facilities for construction workers may cause pollution of surface and underground water.	Duration	Short term	Provide portable ablution facilities that will not cause pollution during the construction phase. There should be 1 Chemical toilet for every 30 workers on site	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	The proposed project can impact on the soil and geology.	Duration	Long term	Implement the findings of the Geo-Technical Engineer. Prevent spills of lubricants/oils that can take place on bare soil. This will include the use of drip trays for vehicles	Long term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Medium
		Probability	Definite		Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium

ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)

PREFERRED ALTERNATIVE: Township establishment consisting of 88 “Residential 3” Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.

Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
				that are standing for more than 24 hours.	
	The vegetation of the area will be removed during the construction phase, which will destroy floral and faunal habitats.	Duration	Short term	Start with the rehabilitation of vegetation to minimize the negative effects of the removal of plants.	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite	The rule must be to minimize the disturbance of animal life by keeping the footprint as small as possible.	Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Open trenches can be dangerous as they can either collapse on people or on equipment and people- especially small children, can fall into them.	Duration	Short term	Ensure that the trenches are dug according to specifications as prescribed by the Civil Engineer.	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite	Ensure that the trenches stay open for as short a time as possible.	Definite
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
				Ensure that open trenches are demarcated as required by the Occupational Health and Safety Act.	
Indirect impacts:					
Geographical Physical Social Economic	Dust generation from the proposed project could impact on the surrounding area.	Duration	Short term	Spray water on open surfaces to ensure that dust does not cause air pollution during construction.	Short term
		Extent	Local		Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable	Start the rehabilitation of disturbed surfaces as soon as possible	Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Spills of lubricants / oils can take place on bare soil.	Extent	Local	Prevent spills of lubricants/oils that can take place on bare soil.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium	This will include the use of drip trays for vehicles that are standing for more than 24 hours.	Medium
		Reversibility	High		High
		Risk	Low		High
					Low

ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)

PREFERRED ALTERNATIVE: Township establishment consisting of 88 “Residential 3” Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.

Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
				Ensure that all construction vehicles are in good working order and not leaking oil and or fuel. No vehicles may be serviced on site.	
	Waste materials such as glass, plastic, metal or paper present a possible pollution hazard	Extent	Local	Implement the management plan to ensure that: All construction rubble is disposed of in a safe and environmentally acceptable manner. NO concrete, gravel or other rubbish will be allowed to remain on site after the construction phase. All cement is housed as to prevent spills (due to rain and or handling errors). NO glass, plastic, metal, or paper shall be allowed to pollute the area.	Local
		Magnitude (Intensity)	Low		Low
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	Non-compliance to the relevant legislation may cause social and environmental problems.	Extent	Local	Ensure that contractors (construction phase) abide by all the requirements of the Occupational Health and Safety Act. Ensure that all contractors are aware of the consequences of non-compliance to the relevant legislation regarding the above-mentioned act as well as with regard to the environment (acts, regulations, and special guidelines).	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Probable		Probable
		Significance	Medium		Medium
		Reversibility	High		High
		Risk	Low		Medium
	New employment opportunities will be created. Local skills development will take place.	Extent	Local	No mitigation measures needed apart from the fact that contractors will have to ensure that they	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite

ENVIRONMENTAL IMPACT ASSESSMENT (Construction phase)

PREFERRED ALTERNATIVE: Township establishment consisting of 88 “Residential 3” Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.

Environmental Attribute	Potential impacts and risks	Assessment criteria	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
		Significance	Medium	abide to the requirements of the Occupational Health and Safety Act and the Employment Equity Act.	Medium
		Reversibility	Medium		Medium
		Risk	Low		Medium
Cumulative impacts:					
Geographical Physical Social Economic	Enhancement of the social well-being of the local communities for which the development is intended	Extent	Local	Ensure that the development is constructed as planned.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite	The demand for housing will be partially addressed in the area.	Definite
		Significance	Medium		Medium
		Reversibility	Medium		Medium
		Risk	Low		Medium
	Solid waste: The proposed development will add additional solid waste into the existing waste stream of the Ubuhlebezwe Local Municipality . Sewage: The proposed development will add additional sewage into the existing sewage stream of the Ubuhlebezwe Local Municipality. Water supply: The proposed development will add pressure to the water supply of Ubuhlebezwe Local Municipality's Water.	Extent	Local		Ensure that the development is constructed as planned by the Civil Engineer.
		Magnitude (Intensity)	Medium	Medium	
		Probability	Definite	Definite	
		Significance	High	High	
		Reversibility	High	High	
		Risk	Low	Medium	
	Traffic: The proposed development will result in an increase in traffic in the immediate surroundings of the proposed development.	Extent	Local	Ensure that the development is constructed as planned by the Town and Regional Planner	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium		High
		Reversibility	Low		Low
		Risk	Medium		Medium
	Indigenous vegetation will be removed.	Extent	Local	No mitigation measures possible.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
Significance		High	High		
Reversibility		Low	Low		
Risk		Medium	Medium		
Extent		Local	Local		

ENVIRONMENTAL IMPACT ASSESSMENT (Operational Phase)

PREFERRED ALTERNATIVE: Township establishment consisting of 88 “Residential 3” Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.

Environmental Attribute	Environmental Attribute	Environmental Attribute	Assessment rating (With mitigation)	Proposed mitigation	Assessment rating (Without mitigation)
DIRECT IMPACTS:					
Geographical Physical Social Economic Cultural	Poorly maintained and serviced infrastructure may cause environmental problems.	Extent	Local	It will be the responsibility of the Local Municipality to maintain the infrastructure.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium- high		High
		Reversibility	High		Medium
		Risk	High		High
Indirect impacts:					
Geographical Physical Social Economic Cultural	Lack of rehabilitation may cause problems	Extent	Local	It will be the responsibility of the Local Municipality to ensure that the rehabilitation plan is implemented	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	Medium- high		High
		Reversibility	High		Medium
		Risk	High		High
Cumulative impacts:					
Geographical Physical Social Economic Cultural	Enhancement of the social well-being of the local communities for which the development is intended	Extent	Local	No mitigation measures required.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	High		High
		Risk	Medium		Medium
Geographical Physical Social Economic Cultural	<u>Broadened tax base:</u> The proposed development will generate more income for the Ubuhlebezwe Local Municipality.	Extent	Local	No mitigation measures required.	Local
		Magnitude (Intensity)	Medium		Medium
		Probability	Definite		Definite
		Significance	High		High
		Reversibility	High		High
		Risk	Medium		Medium

10. PUBLIC PARTICIPATION.

10.1 ADVERTISEMENT AND NOTICE

Publication name	East Griqualand Post	
Date published	24/03/2023	
Site notice 1 position	Latitude	Longitude
	30° 9'35.96"S	30° 3'45.21"E
Site Notice 2 position	30° 9'44.03"S	30° 3'45.91"E
Date placed	24/03/2023	

PROOF OF NEWSPAPER ADVERTISEMENT

10.2. DETERMINATION OF APPROPRIATE MEASURES

Details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN R.982.

Key stakeholders (other than organs of state) identified in terms of Regulation 40(2)(d) of GN R.982:

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
N/A	Neighbours	See photos of letter drop

(Please see below)

10.3 AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders. Key stakeholders identified in terms of Regulation 7(1) and (2) and Regulation 40(2) (a)-(c) of GN R.982:

Tick (✓) relevant option/s		Name of Department	Contact person	Address
YES	NO			
✓		Department of Economic Development, Tourism & Environmental Affairs	Ms Zama Mbanjwa / Ms. Fikelephi Mthembu	270 Jabu Ndlovu Street PIETERMARITZBURG 3201
✓		Ezemvelo KZN Wildlife	Ms Siphumelele Nowele (Chairperson)	1 Peter Brown Drive PIETERMARITZBURG 3201
✓		Amafa	Ms Ros Devereux	195 Langelibalele St PIETERMARITZBURG 3201 info@amafainstitute.org.za
✓		Department of Human Settlements, Water & Sanitation		Govan Mbeki House, 240 Justice Mahomed Street, Sunnyside, Pretoria, 0002 info@dhs.gov.za
✓		Department of Human Settlements, Water & Sanitation Harry Gwala District office	Ms. L Kafile	38 Margaret Street Ixopo
✓		Department of Cooperative Governance and Traditional Affairs		330 Langelibalele Street, Pietermaritzburg 3200 HODPA@kzncogta.gov.za
✓		Department of Transport	N/A (Communication regarding access will be handled by the Engineer)	
✓		Ubuhlebezwe Local Municipality	Mr. G.M. Sineke	29 Margaret Street Ixopo mm@ubuhlebezwe.org.za
✓		Ubuhlebezwe Local Municipality	Ward 4 Councillor THEMBA LOUIS MAHLABA	29 Margaret Street Ixopo 3276
✓		Harry Gwala District Municipality	Mr S'khanyiso Ngcobo	40 Main Street Ixopo 3276 ngcobosk@harrygwalmunicipality.gov.za
✓		SAHRA	SAHRIS	

PLEASE SEE PROOF BELOW



AB ENVIRO-CONSULT CC

Reg no. 2000/016653/23

7 Louis Leipoldt Street,
Potchefstroom, 2531
Tel: + 27 (83) 5488 105
Email: jp@abenviro.co.za

Department of Economic Development, Tourism & Environmental Affairs
Ms Zama Mbanjwa / Ms. Fikelephi Mthembu
270 Jabu Ndlovu Street
PIETERMARITZBURG
3201

24/03/2023

Dear Sir/Madam

PROJECT NAME:

Environmental Impact assessment for the proposed clearance of 5.0534 hectares of indigenous vegetation (of which 31 292 m² is located within a CBA) in order to establish a Township consisting of 88 "Residential 3" Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.

AB ENVIRO CONSULT was appointed by Ubuhlebezwe Local Municipality to submit an application to the Department of Economic Development, Environmental Affairs, KwaZulu-Natal for the above mentioned proposed development. Attached please find a notification of the proposed development and a copy of the Basic Assessment report for your comments. You are requested to comment no later than the 28th April 2023.

In the event of your organisation/department not wishing to comment on this matter, it would be appreciated if we could receive written confirmation thereof to enable us to continue with the finalisation of the application. If no response is however received from your Department/organisation within the said time, in terms of sub-regulation 3(4) of the EIA Regulations it will be regarded as 'no comments'. Please be advised, in accordance with POPIA and NEMA, personal data is collected and processed by the applicant/EAP and shared with the Competent Authority to enable informed decision-making.

Please do not hesitate to contact us should any further information or clarification be required.

Yours sincerely,

Mr JP de Villiers
EAP-EAPASA: 2019/808

PROF A B DE VILLIERS (M Sc, Ph D, SACNASP)
MR.J.P. DE VILLIERS (M Sc, EAP-EAPASA, IAIA); MRS.J.E. DU PLOOY (M.E.M; EAP-EAPASA, IAIA)



AB ENVIRO-CONSULT CC

Reg no. 2000/016653/23

7 Louis Leipoldt Street,
Potchefstroom, 2531
Tel: + 27 (83) 5488 105
E-mail: jp@abenviro.co.za

Department of Human Settlements, Water & Sanitation
Harry Gwala District office
Ms. L Kafile
38 Margaret Street
Ixopo
3276

24/03/2023

Dear Sir/Madam

PROJECT NAME:

Environmental Impact assessment for the proposed clearance of 5,0534 hectares of indigenous vegetation (of which 31 292 m2 is located within a CBA) in order to establish a Township consisting of 88 "Residential 3" Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.

AB ENVIRO CONSULT was appointed by **Ubuhlebezwe Local Municipality** to submit an application to the Department of Economic Development, Environmental Affairs, KwaZulu-Natal for the above mentioned proposed development. Attached please find a notification of the proposed development and a copy of the Basic Assessment report for your comments. You are requested to comment no later than the 28th April 2023.

In the event of your organisation/department not wishing to comment on this matter, it would be appreciated if we could receive written confirmation thereof to enable us to continue with the finalisation of the application. If no response is however received from your Department/organisation within the said time, in terms of sub-regulation 3(4) of the EIA Regulations it will be regarded as 'no comments'. Please be advised, in accordance with POPIA and NEMA, personal data is collected and processed by the applicant/EAP and shared with the Competent Authority to enable informed decision-making.

Please do not hesitate to contact us should any further information or clarification be required.

Yours sincerely,

Mr JP de Villiers
EAP-EAPASA: 2019/808

PROF A B DE VILLIERS (M Sc, Ph D, SACNASP)
MR.J.P. DE VILLIERS (M Sc, EAP-EAPASA, IAIA); MRS.J.E. DU PLOOY (M.E.M; EAP-EAPASA, IAIA)



AB ENVIRO-CONSULT CC

Reg no. 2000/016653/23

7 Louis Leipoldt Street,
Potchefstroom, 2531
Tel: + 27 (83) 5488 105
E-mail: jp@abenviro.co.za

Department of Human Settlements, Water & Sanitation
Govan Mbeki House, 240 Justice Mahomed Street,
Sunnyside,
Pretoria,
0002

24/03/2023

Dear Sir/Madam

PROJECT NAME:

Environmental Impact assessment for the proposed clearance of 5.0534 hectares of indigenous vegetation (of which 31 292 m2 is located within a CBA) in order to establish a Township consisting of 88 "Residential 3" Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.

AB ENVIRO CONSULT was appointed by Ubuhlebezwe Local Municipality to submit an application to the Department of Economic Development, Environmental Affairs, KwaZulu-Natal for the above mentioned proposed development. Attached please find a notification of the proposed development and a copy of the Basic Assessment report for your comments. You are requested to comment no later than the 28th April 2023.

In the event of your organisation/department not wishing to comment on this matter, it would be appreciated if we could receive written confirmation thereof to enable us to continue with the finalisation of the application. If no response is however received from your Department/organisation within the said time, in terms of sub-regulation 3(4) of the EIA Regulations it will be regarded as 'no comments'. Please be advised, in accordance with POPIA and NEMA, personal data is collected and processed by the applicant/EAP and shared with the Competent Authority to enable informed decision-making.

Please do not hesitate to contact us should any further information or clarification be required.

Yours sincerely,

Mr JP de Villiers
EAP-EAPASA: 2019/808

PROF A B DE VILLIERS (M Sc, Ph D, SACNASP)
MR.J.P. DE VILLIERS (M Sc, EAP-EAPASA, IAIA); MRS.J.E. DU PLOOY (M.E.M; EAP-EAPASA, IAIA)



AB ENVIRO-CONSULT CC

Reg no. 2000/016653/23

7 Louis Leipoldt Street,
Polchefstroom, 2531
Tel: + 27 (83) 5488 105
E-mail: jp@abenviro.co.za

Department of Cooperative Governance and Traditional Affairs
HODPA@kzncogta.gov.za

24/03/2023

Dear Sir/Madam

PROJECT NAME:

Environmental Impact assessment for the proposed clearance of 5.0534 hectares of indigenous vegetation (of which 31 292 m² is located within a CBA) in order to establish a Township consisting of 88 "Residential 3" Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.

AB ENVIRO CONSULT was appointed by Ubuhlebezwe Local Municipality to submit an application to the Department of Economic Development, Environmental Affairs, KwaZulu-Natal for the above mentioned proposed development. Attached please find a notification of the proposed development and a copy of the Basic Assessment report for your comments. You are requested to comment no later than the 28th April 2023.

In the event of your organisation/department not wishing to comment on this matter, it would be appreciated if we could receive written confirmation thereof to enable us to continue with the finalisation of the application. If no response is however received from your Department/organisation within the said time, in terms of sub-regulation 3(4) of the EIA Regulations it will be regarded as 'no comments'. Please be advised, in accordance with POPIA and NEMA, personal data is collected and processed by the applicant/EAP and shared with the Competent Authority to enable informed decision-making.

Please do not hesitate to contact us should any further information or clarification be required.

Yours sincerely,

Mr JP de Villiers
EAP-EAPASA: 2019/808

PROF A B DE VILLIERS (M Sc, Ph D, SACNASP)
MR.J.P. DE VILLIERS (M Sc, EAP-EAPASA, IAIA); MRS.J.E. DU PLOOY (M.E.M: EAP-EAPASA, IAIA)



AB ENVIRO-CONSULT CC

Reg no. 2000/016653/23

7 Louis Leipoldt Street,
Potchefstroom, 2531
Tel: + 27 (83) 5488 105
E-mail: jp@abenviro.co.za

Ezemvelo KZN Wildlife
Ms Siphumelele Nowele (Chairperson)
1 Peter Brown Drive
PIETERMARITZBURG
3201

24/03/2023

Dear Sir/Madam

PROJECT NAME:

Environmental Impact assessment for the proposed clearance of 5.0534 hectares of indigenous vegetation (of which 31 292 m² is located within a CBA) in order to establish a Township consisting of 88 "Residential 3" Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.

AB ENVIRO CONSULT was appointed by Ubuhlebezwe Local Municipality to submit an application to the Department of Economic Development, Environmental Affairs, KwaZulu-Natal for the above mentioned proposed development. Attached please find a notification of the proposed development and a copy of the Basic Assessment report for your comments. You are requested to comment no later than the 28th April 2023.

In the event of your organisation/department not wishing to comment on this matter, it would be appreciated if we could receive written confirmation thereof to enable us to continue with the finalisation of the application. If no response is however received from your Department/organisation within the said time, in terms of sub-regulation 3(4) of the EIA Regulations it will be regarded as 'no comments'. Please be advised, in accordance with POPIA and NEMA, personal data is collected and processed by the applicant/EAP and shared with the Competent Authority to enable informed decision-making.

Please do not hesitate to contact us should any further information or clarification be required.

Yours sincerely,

Mr JP de Villiers
EAP-EAPASA: 2019/808

PROF A B DE VILLIERS (M Sc, Ph D, SACNASP)
MR.J.P. DE VILLIERS (M Sc, EAP-EAPASA, IAIA); MRS.J.E. DU PLOOY (M.E.M; EAP-EAPASA, IAIA)



AB ENVIRO-CONSULT CC

Reg no. 2000/016653/23

7 Louis Leipoldt Street,
Potchefstroom, 2531
Tel: + 27 (83) 5488 105
E-mail: jp@abenviro.co.za

Amafa
Ms Ros Devereux
195 Langalibalele St
PIETERMARITZBURG
3201

24/03/2023

Dear Sir/Madam

PROJECT NAME:

Environmental Impact assessment for the proposed clearance of 5.0534 hectares of indigenous vegetation (of which 31 292 m² is located within a CBA) in order to establish a Township consisting of 88 "Residential 3" Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.

AB ENVIRO CONSULT was appointed by Ubuhlebezwe Local Municipality to submit an application to the Department of Economic Development, Environmental Affairs, KwaZulu-Natal for the above mentioned proposed development. Attached please find a notification of the proposed development and a copy of the Basic Assessment report for your comments. You are requested to comment no later than the 28th April 2023.

In the event of your organisation/department not wishing to comment on this matter, it would be appreciated if we could receive written confirmation thereof to enable us to continue with the finalisation of the application. If no response is however received from your Department/organisation within the said time, in terms of sub-regulation 3(4) of the EIA Regulations it will be regarded as 'no comments'. Please be advised, in accordance with POPIA and NEMA, personal data is collected and processed by the applicant/EAP and shared with the Competent Authority to enable informed decision-making.

Please do not hesitate to contact us should any further information or clarification be required.

Yours sincerely,

Mr JP de Villiers
EAP-EAPASA: 2019/808

PROF A B DE VILLIERS (M Sc, Ph D, SACNASP)
MR.J.P. DE VILLIERS (M Sc, EAP-EAPASA, IAIA); MRS.J.E. DU PLOOY (M.E.M; EAP-EAPASA, IAIA)



AB ENVIRO-CONSULT CC

Reg no. 2000/016653/23

7 Louis Lelboldt Street,
Polchefstroom, 2531
Tel: + 27 (83) 5488 105
E-mail: jp@abenviro.co.za

Harry Gwala District Municipality
Mr S'khanyiso Ngcobo
ngcobosk@harrygwaladm.gov.za

24/03/2023

Dear Sir/Madam

PROJECT NAME:

Environmental Impact assessment for the proposed clearance of 5.0534 hectares of indigenous vegetation (of which 31 292 m² is located within a CBA) in order to establish a Township consisting of 88 "Residential 3" Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.

AB ENVIRO CONSULT was appointed by Ubuhlebezwe Local Municipality to submit an application to the Department of Economic Development, Environmental Affairs, KwaZulu-Natal for the above mentioned proposed development. Attached please find a notification of the proposed development and a copy of the Basic Assessment report for your comments. You are requested to comment no later than the 28th April 2023.

In the event of your organisation/department not wishing to comment on this matter, it would be appreciated if we could receive written confirmation thereof to enable us to continue with the finalisation of the application. If no response is however received from your Department/organisation within the said time, in terms of sub-regulation 3(4) of the EIA Regulations it will be regarded as 'no comments'. Please be advised, in accordance with POPIA and NEMA, personal data is collected and processed by the applicant/EAP and shared with the Competent Authority to enable informed decision-making.

Please do not hesitate to contact us should any further information or clarification be required.

Yours sincerely,

Mr JP de Villiers
EAP-EAPASA: 2019/808

PROF A B DE VILLIERS (M Sc, Ph D, SACNASP)
MR.J.P. DE VILLIERS (M Sc, EAP-EAPASA, IAIA); MRS.J.E. DU PLOOY (M.E.M; EAP-EAPASA, IAIA)



AB ENVIRO-CONSULT CC

Reg no. 2000/016653/23

7 Louis Leipoldt Street,
Polchefstroom, 2531
Tel: + 27 (83) 5488 105
E-mail: jp@abenviro.co.za

Ubhlebezwe Local Municipality
Mr. G.M. Sineke
mm@ubhlebezwe.org.za

24/03/2023

Dear Sir/Madam

PROJECT NAME:

Environmental Impact assessment for the proposed clearance of 5.0534 hectares of indigenous vegetation (of which 31 292 m² is located within a CBA) in order to establish a Township consisting of 88 "Residential 3" Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubhlebezwe Local Municipality, KwaZulu-Natal Province.

AB ENVIRO CONSULT was appointed by Ubhlebezwe Local Municipality to submit an application to the Department of Economic Development, Environmental Affairs, KwaZulu-Natal for the above mentioned proposed development. Attached please find a notification of the proposed development and a copy of the Basic Assessment report for your comments. You are requested to comment no later than the 28th April 2023.

In the event of your organisation/department not wishing to comment on this matter, it would be appreciated if we could receive written confirmation thereof to enable us to continue with the finalisation of the application. If no response is however received from your Department/organisation within the said time, in terms of sub-regulation 3(4) of the EIA Regulations it will be regarded as 'no comments'. Please be advised, in accordance with POPIA and NEMA, personal data is collected and processed by the applicant/EAP and shared with the Competent Authority to enable informed decision-making.

Please do not hesitate to contact us should any further information or clarification be required.

Yours sincerely,

Mr JP de Villiers
EAP-EAPASA: 2019/808

PROF A B DE VILLIERS (M Sc, Ph D, SACNASP)
MR.J.P. DE VILLIERS (M Sc, EAP-EAPASA, IAIA); MRS.J.E. DU PLOOY (M.E.M; EAP-EAPASA, IAIA)



AB ENVIRO-CONSULT CC

Reg no. 2000/016653/23

7 Louis Leipoldt Street,
Potchefstroom, 2531
Tel: + 27 (83) 5488 105
E-mail: jp@abenviro.co.za

Ubuhlebezwe Local Municipality
Cllr. Themba Louis Mahlaba (Ward 4)
29 Margaret Street
Ixopo
3276

24/03/2023

Dear Sir/Madam

PROJECT NAME:

Environmental Impact assessment for the proposed clearance of 5,0534 hectares of indigenous vegetation (of which 31 292 m2 is located within a CBA) in order to establish a Township consisting of 88 "Residential 3" Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.

AB ENVIRO CONSULT was appointed by **Ubuhlebezwe Local Municipality** to submit an application to the Department of Economic Development, Environmental Affairs, KwaZulu-Natal for the above mentioned proposed development. Attached please find a notification of the proposed development and a copy of the Basic Assessment report for your comments. You are requested to comment no later than the 28th April 2023.

In the event of your organisation/department not wishing to comment on this matter, it would be appreciated if we could receive written confirmation thereof to enable us to continue with the finalisation of the application. If no response is however received from your Department/organisation within the said time, in terms of sub-regulation 3(4) of the EIA Regulations it will be regarded as 'no comments'. Please be advised, in accordance with POPIA and NEMA, personal data is collected and processed by the applicant/EAP and shared with the Competent Authority to enable informed decision-making.

Please do not hesitate to contact us should any further information or clarification be required.

Yours sincerely,

Mr JP de Villiers
EAP-EAPASA: 2019/808

PROF A B DE VILLIERS (M Sc, Ph D, SACNASP)
MR.J.P. DE VILLIERS (M Sc, EAP-EAPASA, IAIA); MRS.J.E. DU PLOOY (M.E.M; EAP-EAPASA, IAIA)

10.4 ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
To be included in the FBAR	To be included in the FBAR

10.5 COMMENTS AND RESPONSE REPORT

I&AP registered:	Comment received:	Response by the EAP:
To be included in the FBAR		

11. SUMMARY OF THE FINDINGS AND RECOMMENDATIONS OF SPECIALISTS

11.1 GEO-TECHNICAL REPORT (Appendix A).

Please note that this Report was compiled for Alternative 1, therefore there is a discrepancy in the area of development (Indicated as “approximately 30 hectares” and includes “Erf 2281, Ixopo”). The study area does however fall within this assessed area.

Please also note that the author of this Report has passed away as a result of COVID 19. It was indicated by EDTEA during the Pre-Application meeting that his report must be reviewed as it was older than two years. Mr C. J. Viljoen from Viljoen and associates has reviewed the Report and has concluded that (Please see a copy of his confirmation letter below and his signed declaration of independence appended in Appendix H):

- Herewith confirmation *Geotechnical Report 2019 GS201906X* was reviewed.
- The content as presented by the time of the review (*September 2022*) was in order.

Viljoen & Associates



P O Box 20954
Northbridge
South Africa
2522

26 SEPTEMBER 2022

AB ENVIRO CONSULT
7 LOUIS LEIPOLDT STREET
POTCHEFSTROOM
2531

ATTENTION: JP DE VILLIERS

REVIEW OF GEOTECHNICAL REPORT 2019 GS201906X

Specialist studies should not be older than 2 years. It is required to review, update and/or add an addendum from the specialist or person reviewing the document

- Herewith confirmation *Geotechnical Report 2019 GS201906X* was reviewed.
- The content as presented by the time of the review (*September 2022*) was in order.

If you have any questions or require additional information, please don't hesitate to contact the undersigned.

Kind Regards

M.Sc, Pri, Sci, Nat

Email: chris@univata.com
Cell: +27 (0)83 271 6304 Fax: +27 (0)18 290 7500

CEO: *Chris J Viljoen* M.Sc. Pri Sci Nat

SOIL REMEDIATION

11.1.1 Terms of Reference

The aim of this investigation was to identify and evaluate any possible engineering geological problems before commencement of proper township proclamation.

This report is based on the in-situ evaluation of all the representative soil horizons within the ground profile, visual results of the site visit and other relative exposed geotechnical properties on site and derived from interpretation of laboratory results.

The proposed development site is at Ixopo, KwaZulu-Natal, approximately 30 hectares in size. It is situated east of the road to Umzimkulu. It comprises of portions of Erf 174 and of the remainder of Erf 175 and Erf 2281, Ixopo.

11.1.2 INFORMATION USED IN THE STUDY

The following was consulted during the investigation:

- The geological map 3030 Port Shepstone. Scale 1:250 000. The Geological Survey of South Africa.
- The topography map **3030AA Ixopo**. Scale 1:50 000. The Chief Directorate: Surveys and Land Information, Mowbray

11.1.3 METHODOLOGY

All available information (paragraph 1.3) was studied before and during the site visit.

The investigation commenced with a desk study, where all relevant information is collected and compiled on a base map. The site was divided into land forms, after which the accuracy of the information was checked by means of a field visit.

Test pits were dug and representative disturbed samples were collected and tested. The position of the test pits are represented in FIGURE 4 (Appendix A) (Of the Geo-Technical Report). The soil profiles were described by a registered engineering geologist according to the methods described by Jennings *et al* (Jennings 1973). This method describes each horizon in terms of moisture content, colour, consistency, structure, type of soil and origin of the soil.

Disturbed samples of the soil materials were taken for laboratory analysis. The grading of the soils were determined by sieve and hydrometer analysis, resulting in cumulative grading curves.

The mechanical properties of the soil material are described in terms of the liquid limit and plasticity index (determined by means of the Atterberg Limit tests) and the linear shrinkage. These values can be used to calculate the potential expansiveness of the soils, and to evaluate the materials for use as construction material. The consistency of a soil is described by means of its Atterberg limits, where the effect of a change in the moisture content on the consistency of a cohesive soil is measured. According to Cernica (1982) these tests are useful "mostly for soil identification and classification".

It can also be used to determine the mechanical properties of cohesive soil material¹. The linear shrinkage test to determine the percentage shrinkage that can be expected, is performed by wetting a soil to approximately its liquid limit and drying the resultant paste in a linear shrinkage mould.

The potential expansiveness of a soil depends upon its clay content, the type of clay mineral, its chemical composition and mechanical character. A material is potentially expansive if it exhibits the following properties (Kantey and Brink, 1952):

- clay content greater than 12 percent,
- plasticity index of more than 12,
- liquid limit of more than 30 percent, and
- linear shrinkage of more than 8 percent.

The potential expansiveness (low, medium, high, very high) is calculated by means of Van der Merwe's method (Van der Merwe, 1964), where the equivalent plasticity index versus the clay content of the material is plotted on a graph divided into heave categories.

If any sample in the study area classifies as potentially expansive, the amount of heave or mobilization in mm measured on the surface will be calculated.

11.1.4 CONCLUSIONS

The site is underlain by dark grey shale, carbonaceous shale or siltstone of the Pietermaritzburg Formation of the Ecca Group, Karoo Supergroup. Some dolerite intrusions in the form of dykes and sills are also present in the area. Locally the lithology is covered by hillwash.

Additional to local slope instability within opened trenches and the collapse of pit side walls, other slope instability of deeply weathered hillwash is expected within these relative steep areas, and the possibility of a major slope failure could be inflated during long periods of consistent rain fall. Cut and fill operations should also be concluded with proper compaction of the filling material to fit engineer's specification.

No problems are foreseen regarding the excavatability to 1,5m depth on site.

Zoning of the site revealed zones with some moderate constraints regarding the collapse potential and the compressibility of the soil.

The following zones were identified:

Engineering Geological Zonation

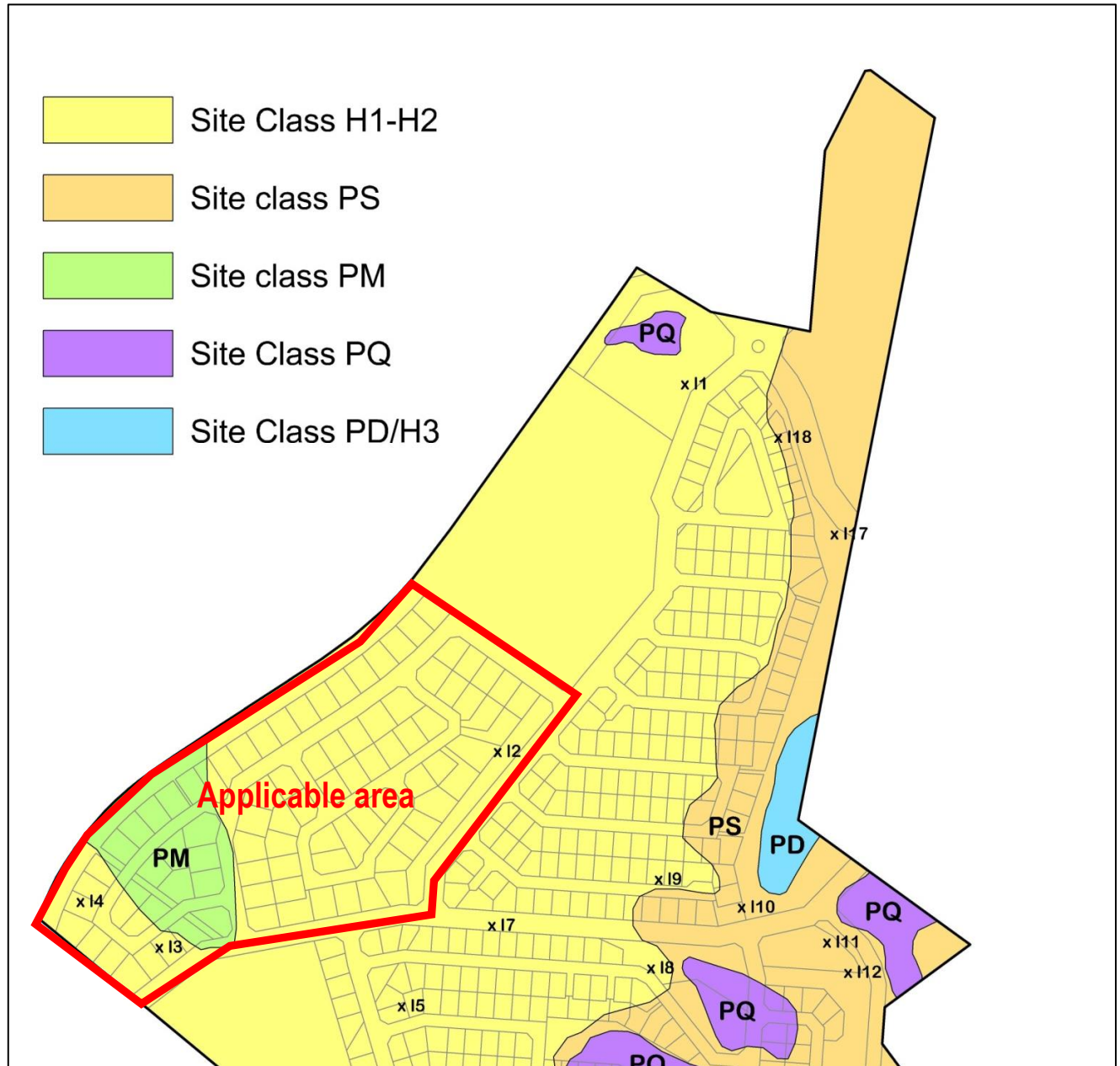
Modified Normal to Special Development:

Site Class H2-H3/C1: This zone comprises mainly of a medium expansive and compressible soil, with thickness in excess of 0,75m, and an expected range of 15 up to 30mm and even more than 30mm of total soil movement measured at surface, underlain in depth by shale or mudstone. Foundations will therefore require modified normal to special foundation techniques such as soil replacement by an engineered fill soil raft by removing all or part of the expansive horizon to 1,0m beyond the perimeter of the structure and replacing with inert backfill, compacted to 93%MOD ASSHTO density at or near optimum moisture content, where after normal strip footing foundations can be used. Special foundation techniques may also include the use of stiffened strip footings, stiffened or cellular rafts, lightly reinforced strip footings or reinforced boxed steel in slightly widened strip foundations, the use of split construction techniques or articulation joints at all internal and external doors and openings with light reinforcement (brickforce) in masonry. Site drainage, a concrete apron of 1,0m around all structures and plumbing and service precautions are advised.

It is classified as H2 to H3 / C1 in terms of the NHBRC guidelines (1995) or the SAICE Code of practice (1995) and 2A2C2D2E as per the classification for urban development (Partridge, Wood & Brink).

Site Class PM: Marshy areas due to a large diameter sewage pipe leakage must be permanently repaired and the problem solved before commencement of construction.

The zones listed above are illustrated below:



Engineering Geological Zone Map

Modified normal and special construction techniques will be required to enable proper development. This includes the use of **compaction techniques** as described.

11.2 ENGINEERING SERVICES REPORT (See Appendix B for a copy of the report)

11.2.1 Terms of Reference

MXN Development as the Developer is to provide professional engineering services for the implementation of this project for Ubuhlebezwe Local Municipality. The envisaged professional engineering services include overseeing the source development, preparation of preliminary and detailed designs in compliance with the relevant guidelines, the professional services for the water supply, sanitation supply, roads and stormwater infrastructure. The report takes the following into account:

- Proposed water supply
- Proposed sanitation supply.

11.2.2 Methodology

Water

The bulk and internal infrastructure development will be designed taking into account all regulatory requirements as well as the conventional design standards used in the civil engineering industry. The following design standards will be utilized for this project:

- Standard Specifications for Civil Engineering Construction: SANS 1200 series
- The Neighbourhood Planning and Design Guide: Department of Human Settlements 2019
- Guidelines for Human Settlement Planning and Design: CSIR 2000
- General Conditions of Contract for Construction GCC 2015 3rd Edition
- SABS 0162: Code of Practice for structural use of Steel: SABS 1984
- SABS 241: Specification for Water for Domestic Use: SABS 2001
- National Building Regulations and Building Standard Act: SANS 10400, 1977
- SANS 815 / SABS 815:1978 - Shouldered-end pipes and fittings, and couplings
- SANS 10112 / SABS 0112:2003 - The installation of polyethylene and Poly (vinyl chloride) (PVC-U and PVC-M) pipes
- National Water Act 1997, and Regulations
- National Environmental Management Act 1998, and Regulations
- Occupational Health and Safety Act 1993, and Regulations
- DWS Design Specifications
- Specifications which are project specific

Sewer

The bulk and internal infrastructure development will be designed taking into account all regulatory requirements as well as the conventional design standards used in the civil engineering industry. The following design standards will be utilized for this project:

- Standard Specifications for Civil Engineering Construction: SANS 1200 series
- The Neighbourhood Planning and Design Guide: Department of Human Settlements 2019
- Guidelines for Human Settlement Planning and Design: CSIR 2000
- General Conditions of Contract for Construction GCC 2015 3rd Edition
- SABS 0162: Code of Practice for structural use of Steel: SABS 1984
- SABS 241: Specification for Water for Domestic Use: SABS 2001
- National Building Regulations and Building Standard Act: SANS 10400, 1977
- SANS 815 / SABS 815:1978 - Shouldered-end pipes and fittings, and couplings

- SANS 10112 / SABS 0112:2003 - The installation of polyethylene and poly (vinyl Chloride) (PVC-U and PVC-M) pipes
- National Water Act 1997, and Regulations
- National Environmental Management Act 1998, and Regulations
- Occupational Health and Safety Act 1993, and Regulations
- DWS Design Specifications
- Specifications which are project specific

11.2.3 Recommendations and Conclusions

Bulk Water Supply

The proposed development falls within the Umgeni Water system which is one of the largest systems within the uMkhomazi Water Resource Region. The Umgeni Water System is owned and operated by Ixopo System. Water is abstracted from the Home Farm Dam, located on the IXobho River a tributary of the UMkhomazi River, and a borehole, located on the local Ixopo Golf Course and supplied to the Ixopo Water Treatment Plant for treatment.

The proposed OR Tambo View housing development will get its raw water from Ixopo Dam, potable water from Ixopo WTP

The bulk and internal infrastructure development will be designed taking into account all regulatory requirements as well as the conventional design standards used in the civil engineering industry.

The Harry Gwala District Municipality as the Water Service Authority has confirmed the existing water services in the immediate area to the proposed development have enough capacity to service the new development. The Water Service Authority (Harry Gwala District Municipality) confirmed that they will provide the proposed OR Tambo View development with a new bulk water pipe with a pipe diameter of 160mm uPVC close to the development to supply portable water.

According to Umgeni Water's Infrastructure Master Plan Volume 3, The Ixopo Potable Water Reservoir is located at the Water Treatment Plant and acts as a balancing and service reservoir. It has a storage capacity of 2.5ML and sits at an elevation of 1001.23m ASL. Besides the above-mentioned reservoir, there is currently no water distribution networks in the proposed OR Tambo View area.

The initial and ultimate water demands for OR Tambo View Area are as follows;

- Initial water demand – 291.46 kl/day,
- Ultimate water demand – 352.13 kl/d,

A new water reticulation network of uPVC pipes with varying pipe diameters 75mm, 110mm, 160mm has been designed and will be constructed within the proposed OR Tambo View development. Please see Figure 4 below for design details.

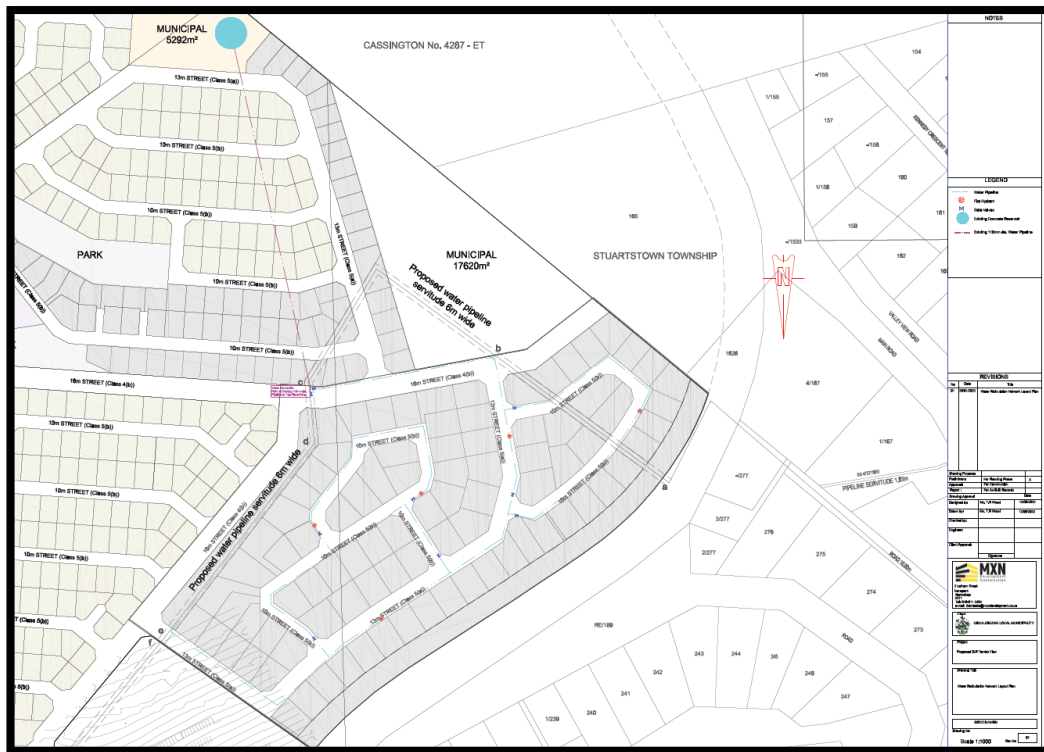


Figure 4: Internal water reticulation

Bulk Sewage

The Proposed OR Tambo View settlement falls within an area serviced by the Ixopo Wastewater Works (WWW). The Ixopo WWW is owned and operated by Umgeni Water. The Ixopo WWW operations use aeration basins for biological nutrient removal and clarifiers for the separation process. The proposed OR Tambo View will discharge its sewer into the exiting Ixopo WWW. According to Umgeni Water's Infrastructure Master Plan Volume 10, Ixopo WWW serves the town of Ixopo in the Harry Gwala District Municipality and is a Class D accredited WWW. It is located next to the R612 regional road and downstream of the Home Farm Dam, which supplies the raw water to Umgeni Water's Ixopo WTP.

According to Umgeni Water's Infrastructure Master Plan 2022 Volume 10, the maximum design capacity of Ixopo WWW is 1Ml/day. Flows to the WWW have been reduced as a result of blockages in the Ixopo sewer network and non-operational pump stations. The flows dropped to <0.2Ml/day. The anticipated return flows are approximately 1.3Ml/day. Therefore, there is a spare capacity of 0.7Ml/d. The Ixopo WWWP has sufficient capacity to meet the current waste water demand of OR Tambo View Development.

The bulk and internal infrastructure development have been designed taking into account all regulatory requirements as well as the conventional design standards used in the civil engineering industry.

The initial and ultimate wastewater demands for OR Tambo View Area are as follows;

- Initial wastewater demand – 109.638kl/day (1.27l/s),
- Ultimate wastewater demand – 132.46kl/day (1.53l/s),

Proposed Bulk Sewer Supply

The proposed OR Tambo View Development will discharge its sewer effluent into an existing bulk sewer pipeline which is connected to the existing Ixopo WWWW. Umgeni Water has confirmed that there is a newly constructed existing bulk sewer pipe with a pipe diameter of 250 mm uPVC close to the development to discharge sanitation on MH60. In the interim it should be noted however, that the diameter and depth of the sewer pipeline will be determined during detail design stage. The proposed bulk sewer pipeline will be uPVC and will cross below any watercourse should there be any, gabions mattresses, dump rock and crusher stones as bedding and blanket to protect the pipe will be utilized.

Proposed Sewer Reticulation Internal Services

A full water borne sanitation system is proposed connecting into the existing bulk/link sewer pipes. Materials used should be PVC with the minimum sizes of 160mm diameter with house connections to be 160mm diameter. Maximum manhole distances of 80m. Please see Figure 5 below.

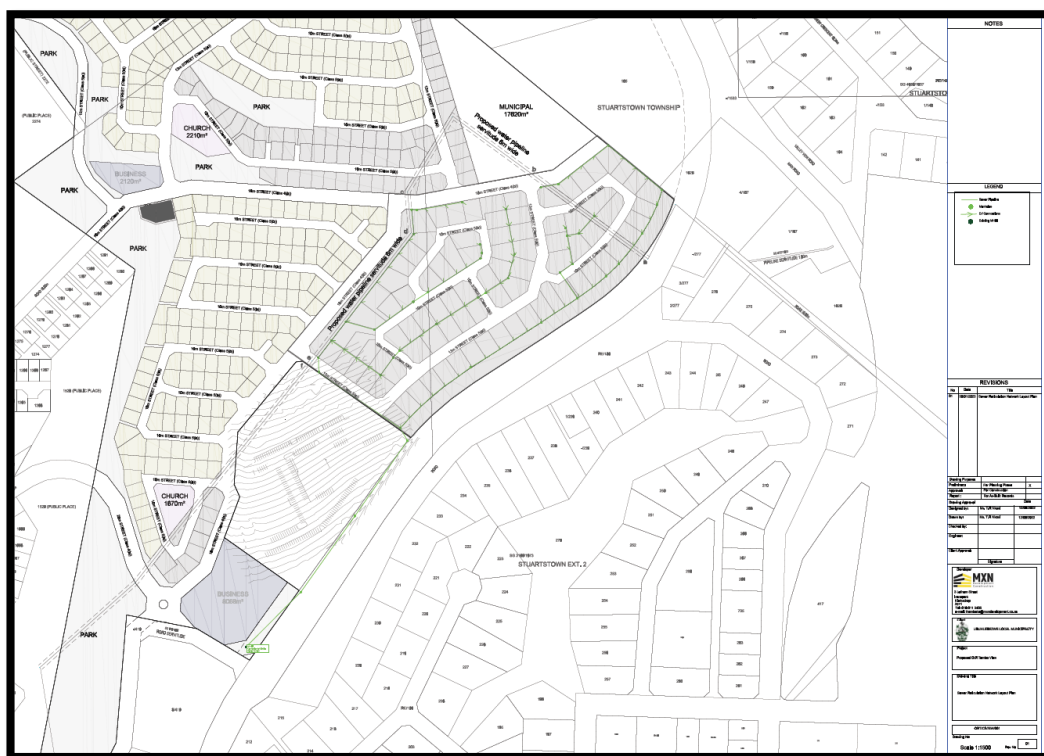


Figure 5: Internal sewer reticulation

Stormwater

A Storm water report has been compiled to address the requirements of the Ubuhlebezwe Local Municipality Regarding the provision of municipal services. The report summarized the level and extent of services required and in terms of this report focus is given to the Stormwater Management Plan.

The main objective of the Storm Water Management Plan is to:

- Minimise the threat of flooding to the area
- Protect the receiving water bodies in the area
- Preserve biodiversity in the area

- Promote the multi-functional use of stormwater management systems (provide amenity to communities)
- Promote the use of the stormwater itself as a water resource

Develop sustainable stormwater systems.

11.3 FAUNA AND FLORA HABITAT REPORT (See Appendix C for a copy of the Report.)

11.3.1 Terms of Reference

An ecological habitat survey was required for a proposed township establishment located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province (elsewhere referred to as the site). The survey focused on the possibility that threatened fauna or flora known to occur in KwaZulu-Natal Province are likely to occur within the proposed development or not as well as to provide a biodiversity assessment. Species of known high conservation priority that do not qualify for threatened status also received attention in the survey.

OBJECTIVES OF THE HABITAT STUDY

The objectives of the habitat study are to provide:

- Surveys to investigate key elements of habitats on the site, relevant to the conservation of fauna and flora.
- Recording of any sightings and/or evidence of existing fauna and flora.
- The selective and careful collecting of voucher specimens of invertebrates where deemed necessary.
- An evaluation of the conservation importance and significance of the site with special emphasis on the current status of threatened species.
- Recording of possible host plants or foodplants of fauna such as butterflies.
- Literature investigation of possible species that might occur on site.
- Integration of the literature investigation and field observations to identify potential ecological impacts that could occur as a result of the development.
- Integration of literature investigation and field observations to make recommendations to reduce or minimise impacts, should the development be approved.

SCOPE OF STUDY

- Surveys to investigate key elements of habitats on the site, relevant to the conservation of fauna and flora.
- Recording of any sightings and/or evidence of existing fauna and flora.
- The selective and careful collecting of voucher specimens of invertebrates where deemed necessary.
- An evaluation of the conservation importance and significance of the site with special emphasis on the current status of threatened species.
- Recording of possible host plants or foodplants of fauna such as butterflies.
- Literature investigation of possible species that might occur on site.
- Integration of the literature investigation and field observations to identify potential ecological impacts that could occur as a result of the development.
- Integration of literature investigation and field observations to make recommendations to reduce or minimise impacts, should the development be approved

11.3.2 Methodology

A desktop study comprised not only an initial phase, but also it was used throughout the study to accommodate and integrate all the data that become available during the field observations.

A survey consisted of visits by R.F. Terblanche during May 2022 to note key elements of habitats on the site, relevant to the conservation of fauna and flora. The main purpose of the site visit was ultimately to serve as a habitat survey that concentrated on the possible presence or not of threatened species and other species of high conservation priority.

11.3.3 Recommendations and Conclusions

- Extensive covers of alien invasive plant species are conspicuous at the site. Vegetation is transformed at parts of the site, owing to residences, and at other parts, modified or degraded.
- Indigenous grass species at the site include *Aristida junciformis*, *Eragrostis curvula*, *Sporobolus africanus*, *Urochloa panicoides* and *Setaria sphacelata*. Indigenous herb species include such as *Senecio madagascariensis* and *Nidorella auriculata*. Alien invasive tree species such as *Solanum mauritianum*, *Acacia decurrens*, *Acacia mearnsii*, and *Melia azedarach* are present. The alien invasive tree *Solanum mauritianum* (bugweed) as well as *Rubus cuneifolius* (American bramble) are in particular visibly dense at parts of the the site. The shrubs *Lantana camara*, *Ricinus communis* and *Rubus cuneifolius* are noticeable at many parts of the site. Alien invasive grass species include *Paspalum dilatatum* and *Pennisetum clandestinum*. Numerous alien invasive herbaceous plant species occur at the site which include *Bidens pilosa*, *Amaranthus hybridus*, *Oenothera biennis*, *Plantago lanceolata*, *Galinsoga parviflora*, *Chenopodium album*, *Tagetes minuta*, *Oxalis corniculata*, *Canna indica* and *Hypochaeris radicata*.
- No wetlands or rocky ridges appear to be present at the site.
- Grassland at the site is represented by the Midlands Mistbelt Grassland (Gs 9) vegetation type which is listed as a Threatened Ecosystem, Vulnerable, according to the National List of Threatened Ecosystems (2011). The vegetation at the site is partly transformed, modified, visibly disturbed and largely isolated. The scope for the restoration and conservation of natural grassland unit at the site is small.
- No Threatened or Near Threatened plant- or animal species appear to be resident at the site. No other plant or animal species of particular conservation concern are likely to be found at the site.
- There is little scope for the partly transformed, modified and visibly disturbed and isolated relatively small patch of grassland to be part of a conservation corridor of particular importance.
- Possible ecological sensitivities at the site were indicated by a report generated from the screening tool of DEFFE. These ecological sensitivities that could possibly/ are present at the site, follow.
- *Animal species theme sensitivity*
- Relative animal species theme sensitivity is listed as high. No suitable habitat for *Hirundo atrocaerulea* (Blue Swallow) is present at the site and the occurrence of this species at the site is highly unlikely. No suitable habitat for the butterfly species *Chrysoritis phosphor borealis* is present at the site (needs specific indigenous forest habitat). No signs or observations of *Chrysospalax villosus*, *Dendrohyrax arboreus* or *Ourebia ourebi ourebi* were noted at the site and based on habitat conditions it is highly unlikely that any of these mammals occur at the site. Such as listed in Tables 4.9 – 4.17 no animals of particular conservation concern are likely to be present at the site. The overall animal theme sensitivity, following the ground truthing at the site, appears to be low.
- *Aquatic biodiversity theme sensitivity*
- Relative aquatic biodiversity theme sensitivity at the site is listed as very high owing to the presence of an aquatic CBA and strategic water source area. The site is not part of a FEPA Freshwater Ecosystem

Priority Area (Nel *et. al.*, 2011). There are important wetlands and watercourses in the larger area. The present rain water run off systems at the site, in particular given the presence of extensive informal dumping and informal residences, are of concern. There are no wetlands at the site and locally at the site the aquatic biodiversity theme sensitivity is low. However, because of the importance of the strategic water source area the stormwater system, if the development is approved, should be carefully planned,

- *Plant species theme sensitivity*
- Relative plant species theme sensitivity is listed as medium. Extensive covers of alien invasive plant species are conspicuous at the site. Vegetation is transformed at parts of the site, owing to residences, and at other parts, modified or degraded. It is highly unlikely that plant species such as *Stachys comosa*, *Woodia verruculosa*, *Helichrysum pannosum*, *Sisyranchthes fanninae* and *Senecio dregeanus* would be present at the site. No signs of these species were observed. It is also highly unlikely that other sensitive species, such as Declining species prone to harvesting (see Table 4.7 and Table 4.8) would occur at the site. The overall plant theme sensitivity, following the ground truthing, appears to be low.
- *Terrestrial biodiversity theme sensitivity*
- Relative terrestrial biodiversity at the site is listed as very high. This high sensitivity that is ascribed to the site area, is because of the presence of Critical Biodiversity Area 1, an Ecological Support Area, a Protected Areas Expansion Strategy, Strategic Water Source Areas and a mapped Vulnerable Ecosystem, the Midlands Mistbelt Grassland. During surveys at the site, it was found that the original vegetation type is partly transformed, modified, visibly degraded and that the relatively small site is largely isolated. There is little scope to restore the grassland at the site and conserve it as a natural unit of Midlands Mistbelt Grassland. The terrestrial biodiversity theme at the proposed footprints appears to be low at the site.
- Ecological sensitivity at the site is low or very-low. Ecological sensitivity at the parts of the site where residential settlements occur, and vegetation has been transformed, is very-low (Figure 3). Ecological sensitivity at the remainder of the site where vegetation is modified and where extensive and visibly dense covers of alien invasive plant species are present, is low (Figure 3).
- While the ecological sensitivity at the site is low and also following the ground truthing for the DEFFE listing, two key issues are to be taken into account:
- Alien invasive plant species should be controlled at the site so that a source area for the spread of alien invasive plant species should no longer be present at the site,
- Because the catchment of the larger area of which the site is part, is so important and also the larger area as a Strategic Water Source Area (DEFFE), the quality of water and the stormwater systems should be planned carefully at the site, if the development is approved.
- Following the mitigations which will be upheld and planned footprint for development all the impact risks listed above are moderate or low.

11.4 HERITAGE IMPACT ASSESSMENT (HIA) See Appendix D

11.4.1 TERMS OF REFERENCE

The Terms of Reference for the study was to:

1. Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located on the portion of land that will be impacted upon by the proposed development;
2. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value;

3. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions;
4. Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources;
5. Review applicable legislative requirements

11.4.2 METHODOLOGY

11.4.2.1 Survey of literature

A survey of available literature was undertaken in order to place the development area in an archaeological and historical context. The sources utilized in this regard are indicated in the bibliography.

11.4.2.2 Field survey

The field assessment section of the study was conducted according to generally accepted HIA practices and aimed at locating all possible objects, sites and features of heritage significance in the area of the proposed development. The location/position of all sites, features and objects is determined by means of a Global Positioning System (GPS) where possible, while detail photographs are also taken where needed.

11.4.2.3 Oral histories

People from local communities are sometimes interviewed in order to obtain information relating to the surveyed area. It needs to be stated that this is not applicable under all circumstances. When applicable, the information is included in the text and referred to in the bibliography.

11.4.2.4 Documentation

All sites, objects, features and structures identified are documented according to a general set of minimum standards. Co-ordinates of individual localities are determined by means of the Global Positioning System (GPS). The information is added to the description in order to facilitate the identification of each locality.

11.4.3 RECOMMENDATIONS AND CONCLUSIONS

In conclusion it is possible to say that the Phase 1 HIA for the proposed upgrade of an informal settlement/township area at O.R.Tambo (Ixopo), in Kwazulu-Natal was conducted successfully. The development & study area is located in the Ubuhlebezwe Local Municipality.

The project is conducted on instruction from MXN Development Construction CC in association with the Ubuhlebezwe Local Municipality (Kwazulu Natal). This project is executed by Maxim Planning Solutions (Pty) Ltd as an essential services project to upgrade the existing informal settlement area present on site and to alleviate the plight of the relevant community living in squalid conditions without basic services. The Heritage Impact Assessment services were seen as essential for the formalization process to ultimately allow for the installation of water, sewerage, stormwater and road infrastructure for this settlement area.

Background research indicated that there are a number of cultural heritage (archaeological & historical) sites and features in the larger geographical area within which the study area falls. No sites, features or material of cultural heritage (archaeological and/or historical) origin or significance were identified in the development area during the assessment.

The only site is the Cross on Medal Hill. As a known and significant landmark in Ixopo care should be taken though to not negatively impact on the site even though it is less than 60 years of age.

Although no graves or graveyards were identified in the area during the assessment, it is very likely that there would be such sites in the study area, especially associated with the both the formal and informal settlement here. Care should be taken no to impact on these sites during any development activities.

Although all efforts are made to locate, identify and record all possible cultural heritage sites and features (including archaeological remains) there is always a possibility that some might have been missed as a result of grass cover and other factors. The subterranean nature of these resources (including low stone-packed or unmarked graves) should also be taken into consideration. Should any previously 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.

From a Cultural Heritage point of view the proposed O. R. Tambo (Ixopo) upgrade of an informal settlement/township area can continue taking the above recommendations into consideration.

12. CONCLUSIONS AND RECOMMENDATIONS

Ubuhlebezwe Local Municipality has appointed **AB Enviro Consult CC**, an independent environmental consultancy, to undertake an Environmental Impact Assessment for the proposed clearance of 5,0534 hectares of indigenous vegetation (of which 31 292 m² is located within a CBA) in order to establish a Township consisting of 88 “Residential 3” Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province.

This Chapter of the BAR provides a summary of the findings of the impact assessment process, including the EAP’s opinion as to whether the activity should or should not be authorised.

12.1 ENVIRONMENTAL IMPACT STATEMENT

The detailed environmental assessment for the proposed development, has not found any environmental impacts that *cannot* be mitigated to acceptable and manageable levels.

Ubuhlebezwe Local Municipality (KZ5a5) is a Category B municipality located within the Harry Gwala District Municipality (DC43). The main administrative centre of the Municipality is the town of Ixopo, which is located approximately 85km south east of Pietermaritzburg, capital of KwaZulu-Natal, and is strategically located at the intersection of four major provincial routes leading to Pietermaritzburg, the Drakensberg, the Eastern Cape and the South Coast. The town of Ixopo forms the primary development node of the Municipality and has also been selected as the seat of the Harry Gwala District Council. The importance of Ixopo cannot be underestimated in the socio-economic development of the area as a whole. Ixopo plays an important role in terms of the possible location for industry, commerce and other economic activity. It is a major education and health centre and assists in the diffusion of new ideas and technologies to the rural areas. It is also the primary base for the operation of many departments and service providers.

Ubuhlebezwe faces housing challenges in both the rural and urban settings of the municipality. The urban setting involves the growing of informal settlement challenges coupled with the rectification issues dealing with past housing developmental quality standards. There are also issues around the limited availability of renting spaces to house the forever growing working-class resulting in more expensive backyard renting as the main option available. The rural context largely includes robust growth of settlement patterns as well as the rural human shelter made of informal structures which are not applicable to the general housing standards.

Multiple housing projects are underway and future housing projects have been planned for the municipality with a total housing provision of 12 609 units including the integrated residential development program, upgrading of informal settlements, housing assistance in emergency circumstances, community residential units programme and individual subsidy program.

Development within or adjacent to the towns of Ixopo and UMzimkhulu have substantially been adversely impacted due to the lack of well-located land and the large backlog in providing the required bulk and connector services to support such initiatives. These issues have resulted in a backlog in housing provision in the municipality with rising slums and poor housing conditions. As such there is a definite need for housing provision in Ubuhlebezwe.

Ixopo has been identified for significant residential development which could reduce the backlog of housing provision in the municipality and improve the living condition and quality of life of residents. Ixopo is a well-located town and has been identified as a primary node for infrastructural and services expansion (including housing), a provincial priority corridor (linking internal and external nodes) and a regional connector (playing a fundamental role in connecting this municipality with other neighbouring municipalities). This places Ixopo as a prime town for residential development.

The layout plan make provision for 88 “Residential 3” erven, with an average stand size of 492m². These properties are aimed at providing affordable and bonded housing units and can also include GAP housing (finance linked individual subsidies – FLISP).

Housing the poor was an ingredient of the Department of Human Settlement’s three-part response to the State’s Vision 2030 Strategy. “Gap housing” is a term that describes the shortfall or gap in the market between units supplied by the State and houses delivered by the private sector. The gap housing market comprises people who typically earn between R3500 and R15000 per month, which is too little to enable them to participate in the private property market, yet too much for state assistance. Gap housing is a policy that addresses the housing aspirations of people such as nurses, fire-fighters, teachers, SAPS members and member of the armed forces who earn between R3500 and R15000 per month and therefore do not qualify for RDP houses and do not earn enough to obtain home loans.

One of the subsidy programmes further available from the Department of Human Settlements includes the Finance Linked Individual Subsidy Programme (FLISP).

FLISP was developed to enable first time home-ownership to households in the “affordable or gap” market, that is, people earning between R3501 and R15000 per month. Individuals in these salary bands generally find it hard to qualify for housing finance; their income is regarded as low for mortgage finance, but too high to qualify for the government subsidy scheme available to households earning less than R3500 per month. Depending on the applicant’s gross monthly income, their once-off FLISP subsidy qualifying amount may vary between R20 000 and R87 000, as defined in the FLISP Subsidy Quantum. Any residential property acquired with the FLISP subsidy may not exceed the R300 000 price margin. FLISP assists qualifying beneficiaries who wish to obtain mortgage finance from a lender to:

- Acquire ownership of an existing residential property
- Obtain vacant serviced residential stands which are linked to house building contracts with the home builders registered with the National Home Builders Registration Council (NHBRC); or
- Build a new house with the assistance of a home builder registered with the National Home Builders Registration Council (NHBRC) on serviced residential stand that is already owned by the beneficiary

The objective of the programme is to reduce the initial mortgage loan amount to render the monthly loan repayment instalments affordable over the loan payment term.

The proposed layout also makes provision for four erven to be zoned as “Passive Open Space”: These properties coincide with the areas not suitable for development due to

- Building line restrictions alongside the R56 road running along the northern boundary of the application site
- A water pipeline servitude along the south-eastern boundary of the proposed development and through portions of the western part of the development, as indicated on the attached layout plan

During the construction phase, temporary employment will be created. The increased employment in the area during the construction phase will also result in increased expenditure, which, in addition, will mean that more than just the proposed jobs required for the construction on the site will be created due to economic spin-offs that will result.

The identification, description, evaluation and comparison of alternatives are important for ensuring a sound environmental scoping process.

The alternatives considered for the proposed development includes:

Preferred Alternative: “Establishment of a Township consisting of 88 “Residential 3” Erven and streets located on the Remaining Extent of Erf 175 and a Portion of Erf 174, Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province. Refer to Figure 2 for a copy of the Proposed Layout Plan.”

This is the preferred alternative at this stage as funding for Alternative 1 is not available at this stage.

Alternative 1: Establishment of a Township located on the Remaining Extent of Erf 175, a Portion of Erf 174 and Erf 2281 Stewartstown, Ixopo, Ubuhlebezwe Local Municipality, KwaZulu-Natal Province. The total site is about 30.543 hectares. The proposed development will comprise of an affordable/GAP housing, subsidised housing and business development (OR Tambo precinct). subject to Council approval. The detailed design of OR Tambo precinct internal layout will only be finalised at a later stage when the proposed development’s township rights have been approved, the general layout plans will be circulated to the various departments of the Local Authority. This integrated mixed-use development consists of approximately 136 stands of affordable housing units with stand sizes between 350m² and 400m², approximately 680 stands with an average size of 250m² (including social amenities) and a business node on 1.04ha.”

The only other alternative that exists for the proposed development is the “**no-go**” option which will imply that the status quo will prevail. This is unacceptable as Informal settlements consist of non-conventional housing built without complying with legal building procedures. Broadly, these crude dwellings mostly lack proper indoor infrastructure, such as water supply, sanitation, drainage, waste disposal and proper road access. There is also a bond between poor housing and environmental conditions in informal settlements which also reflects poverty. Linking basic services such as water to health is viewed as a false separation as these services are ‘intimately related to housing’. It becomes a housing issue if children playing outside the house contract diarrhoea via ingesting pathogens from faecal matter which contaminates the land on which they play. Otherwise, it is the house which provides for shelter against injury, weather and disease. Improving the surroundings of the house is to limit severe health risks existing within poor quality housing.

In addition to the above mentioned, other land parcels will have to be sourced to provide for this need within the community. This will imply that the development will not take place and will result in urban sprawl.

Specialist studies were conducted and a full Public Participation Process is being followed. This information was used to generate a sensitivity map that was used to assess the sustainability of the design and layout plan for the proposed development.

A **Geo-Technical Engineer** has been appointed to conduct a Geo-Technical investigation to determine the impact of the Geology of the area on the development. Please note that this Report was compiled for Alternative 1, therefore there is a discrepancy in the area of development (Indicated as “approximately 30 hectares” and includes “Erf 2281, Ixopo”). The study area does however fall within this assessed area.

Please also note that the author of this Report has passed away as a result of COVID 19. It was indicated by EDTEA during the Pre-Application meeting that his report must be reviewed as it was older than two years. Mr C. J. Viljoen from Viljoen and associates has reviewed the Report and has concluded that:

- Herewith confirmation *Geotechnical Report 2019 GS201906X* was reviewed.
- The content as presented by the time of the review (*September 2022*) was in order.

The **Civil Engineer** found that sufficient Bulk water and sewer reticulation capacity is available within close proximity to the development.

The **Fauna and Flora Habitat** study conducted revealed that no Threatened or Near Threatened plant or animal species appear to be resident at the site. No other plant or animal species of particular conservation concern appear to be present at the site. According to the Specialist, extensive covers of alien invasive plant species are conspicuous at the site. Vegetation is transformed at parts of the site, owing to residences, and at other parts, modified or degraded

The **SAHRA Specialist** found no sites, features or material of cultural heritage (archaeological and/or historical) origin or significance were identified in the study area during the physical assessment.

Consistent with national priorities, environmental authorities must support "*increased economic growth and promote social inclusion*", whilst ensuring that such growth is "*ecologically sustainable*". In the National Spatial Development Perspective (NSDP) it is highlighted that, to achieve the goal of stimulating sustainable economic activities and to create long-term employment opportunities, it is required that spending on economic infrastructure is focused in priority areas with potential for economic development, with development to serve the broader societies' needs equitably.

12.2 ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR)

EMPR's aim to identify and minimise the potential impacts that the proposed construction and operational phases of the project may have on the receiving environment. An EMPR has been developed which is contained in Appendix E and includes detailed mitigatory measures for the construction phase.

As a general guideline, the EMPR should be based on a comprehensive set of environmental aspects (elements of the facility that can interact with the environment), and hence, the EMPR compiled for this application includes the following key components:

- Mechanisms for the on-going identification and assessment of environmental aspects and impacts;
- Environmental management programmes; objectives and targets;
- Environmental monitoring and reporting framework;
- Environmental management procedures; and,
- Mechanisms for the recording of environmental incidents and implementing corrective and preventative actions.

12.3 EAP OPINION

The information contained in this BAR and Specialist Studies, provides a detailed and comprehensive description of the proposed project, baseline environment and potential environmental impacts associated with the proposed development. As no significant impacts that cannot be mitigated were

identified, AB Enviro Consult is of the opinion that the project should proceed, provided that the necessary mitigation and management measures are implemented.

Under South African environmental legislation, the Applicant is accountable for the potential impacts of the activities that are undertaken and is responsible for managing these impacts. The Applicant therefore has overall and total environmental responsibility to ensure that the implementation of the construction phase of the EMPR complies with the relevant legislation and the conditions of the environmental authorisation. The applicant will thus be responsible for the implementation of the EMPR.

The environmental management programme (EMPR) should form part of the contract between the construction company and the applicant. This will help ensure that the EMPR is adhered to. It is suggested that a suitably qualified Environmental Control Officer (ECO) be appointed for the construction phase.

12.4 CONDITIONS RECOMMENDED TO BE INCLUDED IN ANY AUTHORISATION THAT MAY BE GRANTED BY THE COMPETENT AUTHORITY IN RESPECT OF THE APPLICATION

The following recommendations has been identified for the “Non-Operational” (pre-construction and construction phase) phase of the proposed development

1. A full copy of the signed EA from EDTEA in terms of NEMA, granting approval for the development must be available on site
2. A copy of the EMPr as well as any amendments thereof must be available on site
3. A suitably qualified ECO must be appointed.
4. Impacts on the environment must be minimised during site establishment and the development footprint must be kept to the approved development area.
5. Vegetation clearing may not commence until such time as the development footprint has been clearly defined.
6. No clearance of vegetation outside of the development footprint may occur.
7. At the end of the construction phase the site and its surrounding area must be free from any pollution that originated as a result of the construction activities.
8. No disturbance of topsoil & subsoil may commence until such time as the development footprint has been clearly defined.
9. No disturbance of topsoil & subsoil outside of the development footprint may occur.
10. At the end of the construction phase the site and its surrounding area must be free from any chemical, fuel, oil and cement spills that originated as a result of the construction activities.
11. At the end of the construction phase the site and its surrounding area must be free from any sewage that originated as a result of the construction activities.
12. At the end of the construction phase the site and its surrounding area must be free from any hazardous or general waste pollution that originated as a result of the construction activities.
13. Dust prevention measures must be applied to minimise the generation of dust.
14. Noise prevention measures must be applied to minimise the generation of unnecessary noise pollution as a result of construction activities on site.
15. Absolutely no burning of waste is permitted.
16. Fires will only be allowed in facilities especially constructed for this purpose.
17. No hunting of animals will be allowed.
18. No intentional destruction of any sites, features or material of cultural heritage (archaeological and/or historical) origin or significance may occur.

19. All Contractors and sub-contractors must abide to the rules and regulations of the Occupational Health and Safety Act, 85 of 1993.

13. AFFIRMATION BY EAP

Mr. Jean Pierre De Villiers

declare under oath that I:

- a. act as the independent environmental practitioner in this application ;
- b. do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed;
- c. do not have and will not have a vested interest in the proposed activity proceeding;
- d. have no, and will not engage in, conflicting interests in the undertaking of the activity;
- e. undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required;
- f. will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- g. will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
- h. will keep a register of all interested and affected parties that participated in a public participation process; and
- i. will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not.



Signature of the Environmental Assessment Practitioner:

Name of company: AB Enviro Consult CC

Date: 23/03/2023

14. LIST OF REFERENCES

Department of Environmental Affairs and Tourism. 1992. Integrated Environmental Management. Pretoria, DEAT.

Department of Environmental Affairs and Tourism. 1998. *Guideline Document - EIA Regulations.* Pretoria, DEAT.

Department of Environmental Affairs. 1988. *Climate of South Africa, climate statistics up to 1984.* Weather Bureau (WB40). Pretoria, Government Printer.

Department of Transport, 19--. *Climate of South Africa Part 1 Climate statistics.* Weather Bureau (WB20). Pretoria Government Printer.

S. Cliff. 2015. Environmental Scoping report for the proposed high density residential township "Tanganani extension 7", to be located on a part of Portion 119 of the farm Diepsloot 388 JR, City of Johannesburg Municipality, Gauteng

**APPENDIX A:
GEO-TECHNICAL REPORT**

**APPENDIX B:
ENGINEERING SERVICES REPORT**

**APPENDIX C:
ECOLOGICAL SPECIALIST REPORT**

**APPENDIX D:
SAHRA SPECIALIST REPORT**

**APPENDIX E:
ENVIRONMENTAL MANAGEMENT PROGRAMME**

**APPENDIX H:
SPECIALIST DECLARATION OF INDEPENDENCE (TO FOLLOW)**

**APPENDIX I:
PROOF OF BAR SENT TO DW&S**