

BEZWENI TOWNSHIP ESTABLISHMENT DRAFT BASIC ASSESSMENT REPORT

(For Comments by I & AP)

August 2024

(As per Government Notice No.326 Environmental Impact Assessment (EIA)

Regulations, 2017)

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On Behalf of:



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EXECUTIVE SUMMARY

The ACCRA Group, the independent environmental assessment practitioner (EAP), was appointed by uMzimkhulu Local Municipality to prepare and submit an application for an environmental authorisation and to undertake the related Basic Assessment process required in terms of the National Environmental Management Act 107 of 1998 (NEMA) for the proposed Bezweni township establishment development. The site is situated at the Farm Bezweni No. 18223 in uMzimkhulu Local Municipality.

The project entails the development of a township with associated infrastructure such as dwelling units, sanitation, roads, stormwater and community facilities such as schools, crèches, sports field, parks and open spaces.

The Bezweni township establishment forms part of the uMzimkhulu Local Municipality's strategic plan for subsiding the Bezweni farm and urgently generating houses for the homeless living in poverty in Ward 16.

There is a high demand for houses for the locals since most of the uMzimkhulu homesteads are mud huts. The IDP 2022-2023 identified the uMzimkhulu Local Municipality as the most populated municipality within the Harry Gwala District, with a population of 220,620 comprising 101,416 males and 119,203 females as per the census 2022.

According to the Harry Gwala District Environmental Management Frameworks (2018), uMzimkhulu Town (and the adjoining Clydesdale peri-urban area) is considered the primary node, both administratively and economically, in the municipal area. The proposed development will assist low-income housing as it will be implemented in close proximity to areas of opportunity. As an example, the proposed site is located near the hospital and this will serve as an advantage to the proposed township establishment as it means that the locals will now have access to the main sewer town connection. The Bezweni township establishment can serve as a centre for economic activity, providing space for businesses, commercial establishments, and industrial zones. This can create job opportunities for residents and stimulate economic growth within the municipality.

Despite the potential environmental impacts within the challenging context, the development can proceed if the mitigation measures proposed are implemented.

Based on the specialist studies undertaken, the biodiversity impact assessment indicates that the proposed development could have a medium to high impact significance without proper mitigation measures. However, implementing recommended mitigation measures would reduce the impact to low - medium levels.

The Heritage Impact Assessment and Traffic Impact Assessment suggest that the proposed development will not cause any significant impact. In the event of unforeseen circumstances, mitigation measures and recommendations are provided in this report.

Following the detail assessment, particularly the input from the specialists, it is recommended that the development as proposed, is authorised with the mitigation measures to comprise the conditions of approval.

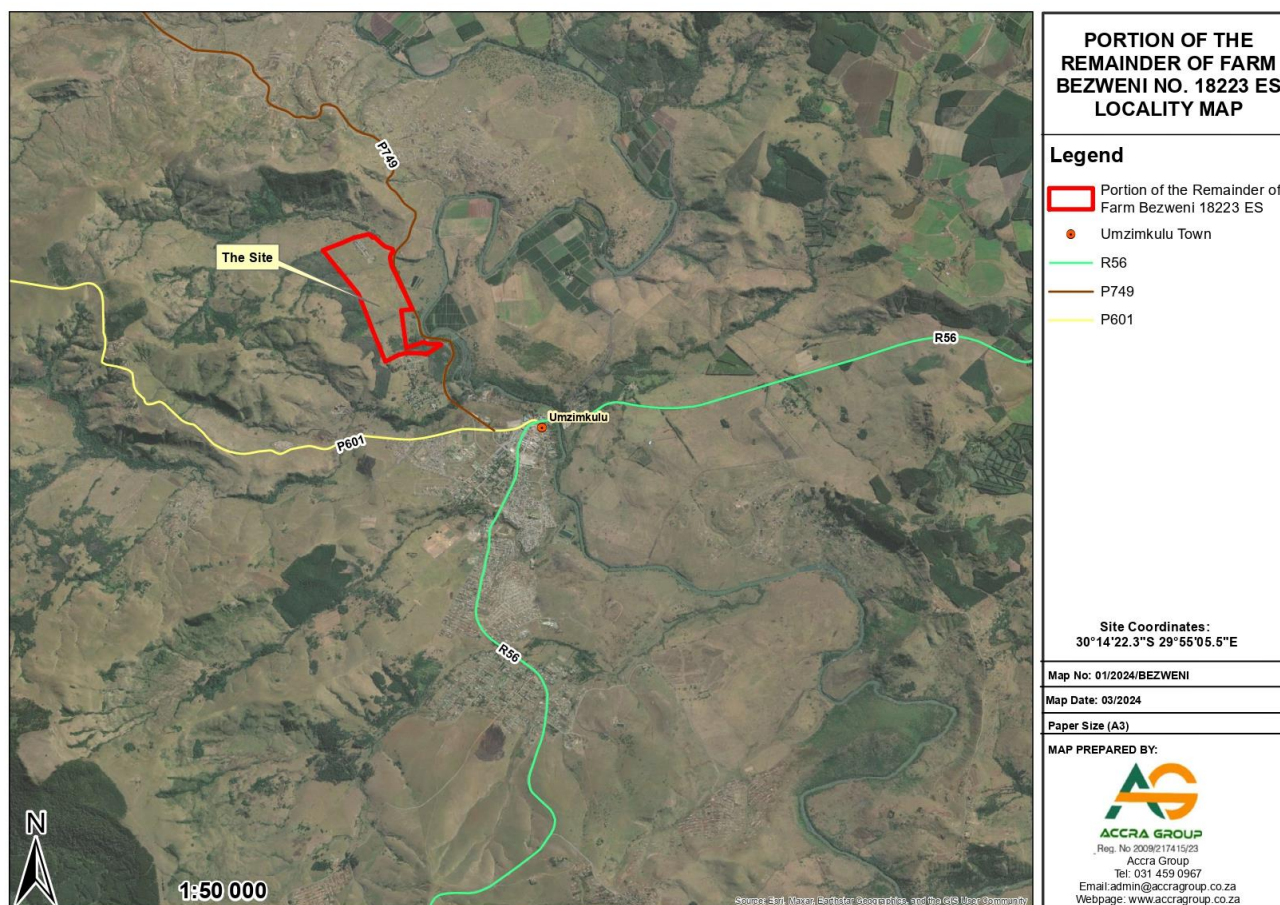
SECTION 1

1.1 Details & Expertise of The Environmental Assessment Practitioner

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SECTION 2

2. Location of the activity



Also refer to Appendix 2: Part A & B

2.1. 21-digit Surveyor General Code of Each Cadastral Land Parcel

N	0	E	S	0	0	0	0	0	0	0	0	1	8	2	2	3	0	0	0	0	0
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2.2. Physical Address and Farm Name

The site is formally described as a Portion of Remainder of the Farm Bezweni No. 18223 located at approximately 30°14'22.3" S 29°55'05.5" E. / 30.252473 29.923987

SECTION 3.

3. Proposed Layout Plan

The project activity is the development of a township to address the housing needs of the community. The project shall comprise of the following land uses as quantified below and shown in the layout plan (Appendix 2: Part C).

Table 1: Land Use

LAND USE					
No.	Zoning	Land use	No. of stands	Area H	Of Area
1.	Residential only detached	Residential	638	56.7	35.3
2.	Residential only medium density	Residential	76	4.2	2.6
3.	Low impact mixed use	Shops	10	1.1	0.7
4.	Educational	School/Creche	6	4.2	2.6
5.	Worship	Church	2	0.3	1.18
6.	Environmental Service	Conservation	6	57.6	35.9
7.	Urban Agriculture	Agriculture	1	7.1	4.4
8.	Active Open Space	Sport field/Park	5	2.5	1.5
9.	Passive Open Space	Open Space	2	1.8	1.12
10.	Government and Municipal	Library/Community Hall	2	0.9	0.56
11.	Streets	-	-	23	13.1
Total		-	745	160.5	99.96

SECTION 4

4. Description of the scope of the proposed activity

The project area is situated at Bezweni Farm Housing in uMzimkhulu town, within the Harry Gwala District of KwaZulu-Natal. Access to the area is via the P749 road. The study site is currently vacant and is bordered by Nyenyezi SP School and uMzimkhulu Hospital.

The proposed project aims to support the development goals of the uMzimkhulu Local Municipality. The establishment of the township will meet some of the growing housing demand in the municipality and generate job opportunities during all construction phases.

The Bezweni housing development has a total land size of approximately 300ha, with approximately 677 residential stands and other stands reserved for government, business/commercial and own space purposes. The project will consist of the construction of bulk infrastructure including roads, installation of water pipelines, sewer and stormwater.

According to the Preliminary Geotechnical Assessment report (Appendix 3: Part A), the application site for the development of the proposed project is designed to accommodate various activities and densities, with a focus on future development needs. Mixed land uses, including different densities, are strategically located throughout the site to ensure accessibility and functionality. The layout follows the principles of the SPLUMA, clustering compatible uses to create safe and secure spaces.

Residential areas in the vicinity are surrounded by higher-density uses to promote a safe environment. Public facilities are positioned to minimize disruption and provide easy access to the community. Open spaces along the riverine system are included to protect the natural environment, with buffers established for environmental conservation.

The road design within the site considers the diverse functions and uses present.

A 15-meter road reserve serves as a primary access route connecting the existing R56 road to commercial, residential, and social facilities. The road network is designed to accommodate potential future changes in land use.

4.1. Biophysical environment for uMzimkhulu Local Municipality

4.1.1. Topography

The topography of uMzimkhulu Local Municipality is characterized by a varied landscape, with different elevations and terrain features. The municipality covers an area of approximately 2,436 square kilometres, with a range of altitudes from 500 to 2,000 meters above sea level. The terrain is largely mountainous, with the Drakensberg Mountains running along the western boundary of the municipality. The mountains are part of the Great Escarpment, which separates the coastal lowlands from the interior highlands of South Africa.

The municipality can be divided into three main physiographic units:

- **Mountainous terrain:** The Drakensberg Mountains are the dominant feature of the western part of the municipality. The mountains are steep and rugged, with peaks reaching elevations of over 2,000 meters.
- **Hilly terrain:** The central part of the municipality is characterized by rolling hills and valleys. The hills are generally less steep than the mountains, but still offer scenic views and diverse habitats.
- **Low-lying areas:** The eastern part of the municipality is relatively flat, with elevations ranging from 500 to 1,000 meters above sea level. This area is drained by several rivers and streams, which flow into the Indian Ocean.

4.1.2 Climate

The climate of the uMzimkhulu Local Municipality is humid subtropical, with warm, humid summers and cool, dry winters. The average annual rainfall is around 1,200 mm, with most rainfall occurring during the summer months (October to March). The average temperature ranges from 12°C to 22°C, with the highest temperatures occurring in January and February, and the lowest temperatures in June and July.

The climate of the municipality is influenced by its proximity to the Indian Ocean and the Drakensberg Mountains. The oceanic influence brings warm, moist air from the east, while the mountains create a rain shadow effect, resulting in higher rainfall in the western parts of the municipality.

4.1.3. Vegetation

The vegetation of uMzimkhulu Local Municipality is diverse and varied, reflecting the different climatic and topographic conditions. The municipality is dominated by grasslands, with scattered forests and woodlands in the higher-lying areas. The vegetation is largely composed of savanna and grassland biomes, with some areas of Afro-montane Forest and fynbos.

There are eight (8) terrestrial vegetation types and four wetland vegetation types, namely:

Table 2: Vegetation type and Conservation status

No.	Vegetation type	Conservation status
1.	Drakensberg Foothill Moist Grassland	Least Threatened
2.	Dry Coast Hinterland Grassland	Vulnerable
3.	East Griqualand Grassland	Vulnerable
4.	Eastern Mistbelt Forests	Endangered
5.	Eastern Valley Bushveld	Least Threatened
6.	Midlands Mistbelt Grassland	Endangered
7.	Moist Coast Hinterland Grassland	Endangered
8.	Southern KwaZulu-Natal Moist Grassland	Vulnerable
9.	Alluvial Wetlands: Temperate Alluvial Vegetation	Vulnerable
10.	Alluvial Wetlands: Temperate Alluvial Vegetation: Midland Floodplain Grasslands	Least Threatened
11.	Freshwater Wetlands: Drakensberg Wetlands	Least Threatened
12.	Freshwater Wetlands: Eastern Temperate Wetlands	Vulnerable

4.1.4 Hydrology

The uMzimkhulu Local Municipality is rich in water resources, with several rivers, streams, and wetlands. The municipality is drained by several rivers, including the uMzimkhulu River, which flows into the Indian Ocean. This catchment is reported to be threatened in terms of water yield and water quality as a result of extensive afforestation, agriculture, overgrazing, and bush burning. Depletion of ground cover has caused severe erosion in localised areas in the municipality. Given that the catchment is extensive, the removal of ground cover could exacerbate the incidence and intensity of flooding in the municipality.

The rivers are an important source of water for irrigation, domestic use, and industrial purposes.

The Mvubukazi River is located some 100m south of the site whereas the Nyenyezi River forms the northern boundary of the site and both flow in a north easterly direction where it joins (tributary) the Mzimkulu River.

- Current Ground and Surface Water Usage

The town relies on municipal water supply, and it's unlikely that residents or businesses would use groundwater or river water for anything except:

- Watering crops (irrigation)
- Providing water for animals (livestock)

The municipal water supply meets the town's needs, and there's little demand for alternative water sources for human consumption or other domestic purposes.

- Drainage

The study area has a distinctive dendritic drainage pattern, where most water runoff flows northeast towards the Nyenyezi and Mvubukazi Rivers, which eventually empty into the Mzimkulu River. The valley floors tend to be poorly drained, with characteristic wetland conditions (alluvial vleis) prevailing for most of the year, except during the rainy season when the streams start flowing again in response to precipitation.

4.1.5. Geology

The site's geology consists of shale and sandstone from the Pietermaritzburg Formation, as well as post-Karoo Dolerite.

4.1.6. Geotechnical conditions

The site appears stable, but the shale in the area can become saturated and prone to small landslides during heavy rain. However, by flattening the slopes and using proper construction methods, the risk of slope instability can be significantly reduced.

The site is characterized by significant subsurface water flow. Groundwater is likely to be encountered at a depth of between 0.5 and 1.5 meters, typically where the sandy colluvial soil and pedogenic horizon meet the underlying shale or dolerite rock.

4.2. Listed and Specified Activities Triggered and Being Applied for

Table 3: Listed Activities Being Applied for

(i) Activity No	Government Listing Notice	Activity description	Applicability to the project
Activity 9	Listing Notice 1 GNR 327	<p>The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water—</p> <p>(i) with an internal diameter of 0,36 metres or more; or</p> <p>(ii) with a peak throughput of 120 litres per second or more excluding where—</p> <p>(a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or</p> <p>(b) where such development will occur within an urban area.</p>	<p>The water supply for the proposed development will have a main connector pipe with a minimum diameter of 75mm. This exceeds the 0,36 meters and 1000 m in length pipe stipulated in the Government Notice.</p>
Activity 10	Listing Notice1 GNR 327	<p>The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes –</p> <p>(i) with an internal diameter of 0,36 metres or more; or</p>	<p>The sewer will comprise more than 1000m in length and will connect to the waste treatment plant that is located approximately 5km away from the project site.</p>

(i) Activity No	Government Listing Notice	Activity description	Applicability to the project
		(ii) with a peak throughput of 120 litres per second or more; excluding where— (a) such infrastructure is for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.	
Activity 24	Listing Notice 1 GNR 327	The development of a road— (i) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres; but excluding a road— (a) which is identified and included in activity 27 in Listing Notice 2 of 2014;	The proposed internal access roads will have a width of between 12-15m with sidewalks where applicable. This exceeds the 13,5 m stipulated in the Government Notice.

(i) Activity No	Government Listing Notice	Activity description	Applicability to the project
		(b) where the entire road falls within an urban area; or (c) which is 1 kilometer or shorter.	
Activity 27	Listing Notice 1 GNR 327	The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for— i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	The proposed development site has more than 20ha of indigenous vegetation cleared.
Activity 28	Listing Notice 1 GNR 327	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;	The development is proposed on land that was previously used for agriculture, where it is in a rural area and more than 1 ha.

(i) Activity No	Government Listing Notice	Activity description	Applicability to the project
		excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.	

4.3. Description of the Activities to be Undertaken Including Associated Structures and Infrastructure

The project entails the development of a township with associated infrastructure such as dwelling units, sanitation, roads, stormwater and community facilities such as schools, crèches, sports field, parks and open spaces. These are indicated on the layout plan

(Appendix 2: Part C).

Details regarding some of the activities are described below:

4.3.1 Sanitation System Upgrade

As per the uMzimkhulu Local Municipality (IDP) 2022/2023, Approximately 23.75% households in the municipal area have access to sanitation services leaving about 76.25% households without access to proper sanitation. The municipality is working closely with the Harry Gwala District Municipality to address the sanitation needs and priority will be in the CBD, Nodes and areas that are prone to outbreak.

Rural areas under the jurisdiction of uMzimkhulu use pit latrines with very few areas that use septic tanks. A main sewer line has been installed within the uMzimkhulu CBD and surroundings. Therefore, most CBD residents are using water borne sanitation systems. This depicted by the census 2011 which shows that only 6.4% of the households have flush toilets that are connected to the sewerage

The majority of homes in and surrounding the project area appear to still utilize pit latrines, according on-site investigations done in March 2023. The proposed site is close to the hospital, which has a sewage connection that connects to the town's main sewer plant. In order to handle the volume, which will include that of the residents of the projected development, systems will be improved. It is imperative that this be done in order to maintain hygiene.

4.3.2 Roads

Department of Transport is the service authority in this area and are responsible for routine maintenance and upgrading of roads respectively surrounding the proposed development area.

According to the uMzimkhulu Local Municipality (IDP) 2022/2023, most of the roads in the uMzimkhulu are repaired and maintained by the municipality (with its own machinery) and Department of Transport. Through the assistance of the Department of Transport (DOT) and other government departments, the municipality has received substantial assistance in addressing the road challenge. The municipality reviews its maintenance plan annually.

a) Internal Access Roads Design

According to the Preliminary bulk and internal services assessment report (Appendix 3 Part B) the uMzimkhulu Local Municipality will be the service authority for the maintenance of the internal roads and if funds allow, internal roads should be surfaced with asphalt as the final layer. A new storm water system will be implemented to manage storm water. The road width varies from 5.5m wide to 7m wide.

b) Road material sources

Materials for the subgrade, subbase, and base course shall be acquired from an authorized borrow pit within the site area in accordance with the geotechnical findings. a current borrow pit with good G5 material that is only 5 kilometres from the project site.

c) Pavement structure

The minimum pavement structure would be designed based on the required guidelines.

d) General cross-section design

The proposed roads will have a carriageway width of 6m - 8m with sidewalks where practicable. The cross-sectional slope of the road will be cambered with 3% with falls either side of road. A combination of earth drains, earth channels and concrete culverts will be provided to assist with storm water drainage.

e) Vertical alignment

The roads will be designed to follow the existing vertical alignment, but within standards to avoid batters interfering with houses, facilitate storm water flow and to avoid the ponding of water and, improve the quality of the ride.

4.3.3. Stormwater

Efficient stormwater management is crucial for both environmental and infrastructural reasons, especially in medium-income or subsidized housing developments where budget constraints may limit the available resources.

The following options and design considerations will be noted prior to the planning and design of a storm water disposal system:

a) Storm water soak pits

Stormwater soak pits can be considered as a measure for stormwater management in certain situations, depending on the calculated storm water runoff, permeability and structural make-up of the sub-soils the specific drainage area, as well as available size of the disposal area, particularly when other options are limited due to factors such as available space, soil conditions, and budget constraints.

b) Discharge to road hardenings

Wherever possible, storm water discharge from houses will be led away and discharged onto the road hardening and/or directly into the road storm water drainage systems which will be designed to cater for such a runoff control.

c) Discharge to valley bottoms

Because of the risk of erosion, it is not advised to discharge storm water into valley bottoms through basic storm water outfalls. As a result, it is advised that the discharge points be constructed to prevent erosion.

4.3.4 Water

The Harry Gwala District Municipality is a water service authority as mandated by the legislative prescript. Water and sanitation therefore are provided by the District Municipality though water is drawn from around the various municipal water streams and mainly in the uMzimkhulu River and other tributaries.

The bulk water pipelines run alongside the P749, is not far from the planned housing development. Therefore, the proposed development will be connected to the bulk pipelines

As per the community survey, (2016) approximately 32.1% of the households in the uMzimkhulu Municipal area have access to clean / tap water. About 67.90% households are without clean or piped water. The municipal's priority is to ensure that all households have access to clean water

4.3.5 Earthworks

Most sites will require some earthwork to create a stable platform for building a house. The type and extent of earthwork needed will depend on the soil conditions and the site's topography. In areas with gentle slopes, minimal site preparation will be sufficient, while steeper areas will require the construction of cut-and-fill platforms.

SECTION 5.

5. Policy and Legislative context

This section highlights the relevant legislation that affect the proposed project. It is crucial to understand and comply with these laws before moving forward with the project.

Policies and legislation provide the necessary guidelines for conducting thorough assessments and ensuring that the project is evaluated in line with environmental standards.

The key legal requirement is to obtain an Environmental Authorization (EA) from the Economic Development, Tourism, and Environmental Affairs (EDTEA) in accordance with the National Environmental Management Act (NEMA) and Environmental Impact Assessment (EIA) Regulations. It is also important to consider other relevant laws at the national, provincial, and local levels to assess their impact on the project.

By incorporating environmental considerations into project planning, basic assessments help to reduce environmental impact, support sustainable development, and protect natural resources for future generations.

Table 4: Applicable Legislation and Policies

No.	Applicable policy/legislation	Applicability to the proposed project	Administering authority
1.	Constitution of the Republic of South Africa (Act No. 108 of 1996)	<p>All activities must be undertaken according to the laws and regulations of RSA.</p> <p>The proposed development will assist in providing essential housing and services to the beneficiaries who will live in the houses. While the Constitution does not directly govern housing development, its provisions create a legal and institutional framework that influences government policies and actions related to housing needs. These provisions also promote equality, protect property rights, and ensure the dignity of all South Africans. Adhering to constitutional principles is crucial for fostering inclusive and sustainable housing development in South Africa.</p>	Department of Justice and Constitutional Development
2.	National Environmental Management Act, 1998	<p>The National Environmental Management Act (Act 107 of 1998; NEMA) is South Africa's overarching environmental legislation. It includes a set of principles that govern environmental management and against which all Environmental Management Programmes (EMPr) and actions are measured. These principles include and relate to sustainable development, protection of the natural environment, waste minimisation, public consultation, the right to an environment that is not harmful to one's health or wellbeing, and a general duty of care.</p> <p>NEMA's application to housing development ensures that environmental considerations are integrated into the planning, implementation, and operation of housing projects, promoting sustainable development and</p>	Department of Forestry Fisheries and Environment (DFFE)

No.	Applicable policy/legislation	Applicability to the proposed project	Administering authority
		minimizing adverse environmental impacts. Compliance with NEMA requirements is essential for developers to obtain approvals and licenses for their housing developments in South Africa.	
3	National Environmental Management: EIA Regulations, 2014	<p>The Environmental Impact Assessment (EIA) Regulations, 2014: Government Notice Regulation 982, 983, and 985 under Section 24 of the NEMA define the activities that require Environmental Authorisation and the processes to be followed to assess environmental impacts and obtain Environmental Authorisation.</p> <p>The proposed project requires a Basic Assessment Report (BAR) to be conducted as per the Government Notice No. 326 EIA Regulations, 2017, Appendix 1.</p> <p>Environmental Authorisation through a Basic Assessment Process is required for: Listing Notice 1, GNR No. 327 (Activity 9, 10, 24, 27 and 28).</p>	DFFE
4.	National Environmental Management: Waste Act 2008, (Act No. 59 of 2008)	The National Environmental Management: Waste Act 2008 applies to housing development, regulating waste management practices to reduce environmental impacts, promote resource efficiency, and safeguard public health and the environment. Compliance with the Act is crucial for housing developers to minimize the environmental impact of their projects and implement sustainable waste management practices in residential communities.	Economic Development and Tourism, and Environmental Affairs (EDTEA)

No.	Applicable policy/legislation	Applicability to the proposed project	Administering authority
		During the proposed development, only a partial amount of solid construction waste will be generated and stored on-site before being transported to a registered landfill site.	
5.	National Environmental Management: Biodiversity Act (No. 10 of 2004)	<p>The National Environmental Management: Biodiversity Act (NEM:BA) aims to manage and conserve South Africa's biodiversity under the National Environmental Management Act, 1998. It protects species and ecosystems that need national safeguarding, promotes sustainable use of indigenous biological resources, ensures fair benefit-sharing from bioprospecting, establishes the South African National Biodiversity Institute, and addresses related issues.</p> <p>A biodiversity assessment was undertaken by the AIM360 Environmental Solutions (PTY) Ltd. to identify sensitive areas within the project area and mitigation measures were recommended by the specialist.</p>	EDTEA
6.	National Water Act (Act No. 36 of 1998)	<p>The National Water Act, 1998 (Act No. 36 of 1998) (NWA) aims to manage national water resources for sustainable use, benefiting all water users. It mandates the protection of water quality and integrated management of water resources, with powers delegated to regional or catchment-level institutions.</p> <p>The Water Use License will be required as the proposed development is within 32m of a watercourse.</p>	Department of Water and Sanitation (DWS)

No.	Applicable policy/legislation	Applicability to the proposed project	Administering authority
		The proposed project will entail the general use of water in the construction and operational phases.	
7.	National Environmental Management: Air Quality Act 2004, (Act No. 39 of 2004)	<p>This act provides guidelines for addressing air quality issues.</p> <p>The Act establishes norms and standards for managing air quality. During the construction phase, dust and noise generation can be significant factors, particularly for nearby communities. However, effective mitigation measures can be implemented to reduce the potential impacts. By addressing these issues, the proposed development can minimize its contribution to air and noise pollution.</p>	EDTEA
8.	Occupational Health and Safety Act (No 85 of 1993)	<p>The OHS Act ensures the health and safety of workers and others in relation to machinery use. It also protects non-workers from health and safety risks associated with work activities.</p>	Department of Labour
9.	National Road Traffic Act, 1996 (Act No. 93 of 1996)	The Department of Roads will be responsible for routine maintenance and upgrading of roads respectively surrounding the proposed development area. The National Road Traffic Act will assist in road safety as the development of the project may lead to traffic jams as vehicles move in and out of the facility.	Department of Transport
10	The uMzimkhulu Local Municipality Spatial	The SDF is a municipal framework that seeks to guide the overall spatial distribution of current and desirable land	uMzimkhulu Local Municipality

No.	Applicable policy/legislation	Applicability to the proposed project	Administering authority
	Development Framework 2021-2022	uses. The proposed development is in line with the municipal SDF.	
11.	The uMzimkhulu Integrated Development Plan 2021-2022	<p>The Integrated Development Plan (IDP) guides and informs the municipality's planning, development & budgeting program.</p> <p>The uMzimkhulu Local Municipality highlights the issue of housing backlogs, high unemployment rate, and poverty impacting negatively on available resources.</p> <p>The township development activity is in line with IDP objectives for rural/urban development.</p> <p>The uMzimkhulu IDP aims to tackle housing backlogs in the municipality. The Department of Human Settlements has been slow in delivering housing, which has led to pressure from the community on the municipality to address the issue. While housing delivery is not the municipality's direct responsibility, it is working closely with the department to expedite the process.</p> <p>The proposed project will create job opportunities during the construction phase and beyond. Initially, jobs will be available in the construction sector, but as the site develops into a residential area, more employment opportunities will arise in sectors like agriculture, retail, and transport.</p> <p>The proposed development is expected to meet the growing housing demand in the area and generate</p>	KZN Department of Human Settlement and uMzimkhulu Local Municipality

No.	Applicable policy/legislation	Applicability to the proposed project	Administering authority
		employment opportunities during construction, ultimately enhancing the quality of life for residents.	
12.	Harry Gwala District Environmental Management Frameworks (2018)	<p>The objective of the EMF is to guide sustainable land use of the management within the Harry Gwala District Municipality (HGDM)</p> <p>A specialist study (the Biodiversity Assessment) has been undertaken and is included in this report (Section 12)</p>	
13.	Spatial Planning and Land Use Management Act, 2013 (SPLUMA)	<p>The application for township establishment should adhere to certain development principles set out in SPLUMA.</p> <ul style="list-style-type: none"> • The principle of Spatial Sustainability • The principle of efficiency • The principle of good administration <p>The township development is in line with the principle of spatial sustainability as it is located within the urban edge and next to existing urban development, such as the uMzimkhulu Hospital, as outlined in the municipality's spatial planning framework.</p> <p>The proposed development aims to make efficient use of existing infrastructure while ensuring the continuity of new infrastructure and road development.</p> <p>It will also empower the ULM by creating job opportunities and addressing housing demand.</p>	

No.	Applicable policy/legislation	Applicability to the proposed project	Administering authority
14.	2035 Provincial Growth & Development Plan (2019)	Local municipalities are crucial in achieving the province's vision, as most projects are implemented at the local level. Therefore, municipalities should strive to initiate projects with far-reaching impacts, extending to provincial and national levels. The 2035 Provincial Growth and Development Plan emphasizes the need for spatial planning to address the lack of economic opportunities and interventions in rural areas. It also advocates for strategic development in rural hubs. This proposed township establishment aligns with these goals, addressing the identified need for strategic development in rural towns.	
15.	National Heritage Resources Act (Act 25 of 1999) KwaZulu-Natal Heritage Act (No. 4 of 1998)	The National Heritage Act (No. 25 of 1999) is designed to encourage the effective management of the national estate to safeguard the country's distinctive heritage for present and future generations. The KwaZulu-Natal Heritage Act (Act No. 4 of 2008) focuses on the protection and conservation of the tangible and intangible heritage assets of the KwaZulu-Natal province. According to the Heritage Impact Assessment (Appendix 3: Part C), no significant archaeological artefacts will be disturbed during this project. Therefore, no permits will be required from the provincial heritage authority, AMAFA. The specialist noted that the report will be submitted to the KZN Amafa and Research Institute on SAHRIS, in fulfilment of the requirements of the NHRA.	KZN Amafa and South African Heritage Resources Agency (SAHRA)

SECTION 6

6. Motivation for the Need and Desirability

6.1 Introduction

The EIA Regulations stipulate that the “need & desirability” of a project must be considered in the EIA process. The guideline aims to ensure that all the relevant sustainability considerations have been taken into account.

The Bezweni township establishment forms part of the uMzimkhulu Local Municipality’s strategic plan for subsidizing the Bezweni farm and urgently generating houses for the homeless living in poverty in Ward 16.

There is a high demand for houses for the locals since most of the uMzimkhulu homesteads are mud huts. The IDP 2022-2023 identified the uMzimkhulu Local Municipality as the most populated municipality within the Harry Gwala District, with a population of 220,620 comprising 101,416 males and 119,203 females as per the census 2022.

According to the Harry Gwala District Environmental Management Frameworks (2018), uMzimkhulu Town (and the adjoining Clydesdale peri-urban area) is considered the primary node, both administratively and economically, in the municipal area.

Rietvlei, Riversdale, and Ibisi are considered secondary nodes, serving as rural service centers. Other settlements like Mountain Home, Glengarry, Ntsikeni, and Ncambele (Gowan Lea) can be seen as minor service centers.

The proposed development will assist low-income housing as it will be implemented in close proximity to areas of opportunity. As an example, the proposed site is located near the hospital and this will serve as an advantage to the proposed township establishment as it means that the locals will now have access to the main sewer town connection.

The proposed site is located near the road to make it easy and convenient to access places such as towns, schools, or hospitals thus limiting the need for mobile clinics.

6.2 Economic opportunities

Employment is a crucial aspect of a society's economic, social, and environmental development. It offers financial independence and enhances the quality of life for individuals. A thriving job market signifies a healthy economy with ample opportunities for its citizens.

The SDF 2023/2024 highlights that there is still a high unemployment rate in uMzimkhulu. The proposed project will create economic opportunities thus increasing the employment rate. The proposed project will open job opportunities during the construction period. The job opportunities will not only be limited to the construction sector but more people will be employed when the proposed site becomes a full residential area as more sectors will follow up (such as agriculture, retail, or transport).

Since the Umzimkhulu town and Clydesdale are identified as a single primary node that will function as the main administration and economic town servicing the whole municipality. The Bezweni township establishment can serve as a centre for economic activity, providing space for businesses, commercial establishments, and industrial zones. This can create job opportunities for residents and stimulate economic growth within the municipality.

6.3 Population growth

The Stats SA census 2022, shows that about 143 people are still living in informal settlements and about 6067 are living in traditional dwellings. The implementation of the housing development will assist in reducing the housing backlog within the municipality as well as mitigate the establishment of potential informal settlements.

The IDP and SDF have identified the uMzimkhulu as a primary node. Mzimkhulu is an urban settlement and more people are located in Mzimkhulu for basic needs. More people within the Harry Gwala District are moving to urban areas for better service deliveries. The Bezweni Township establishment could help manage this urbanization process effectively. Providing planned urban spaces can ensure that migration doesn't lead to overcrowding or informal settlements.

Hence there is a defined need for housing in the area and the locality make sit desirable due to a range of advantages.

SECTION 7

7. Socio-economic analysis

7.1 Demographics

7.1.1 Population distribution

The total estimated population for the Harry Gwala District in 2022 was 563,893 (Stats SA, 2022). The Harry Gwala District consists of four local municipalities, with uMzimkhulu Local Municipality (ULM), being the most populated municipality among them, with an approximate population size of 220,620 as per Stats SA 2022.

The ULM makes up approximately 1,8% of the total population of KwaZulu-Natal province. The municipal IDP 2022/2023 (amended) confirms that the ULM is the most populous municipality within the District of Harry Gwala.

Population groups in the ULM include the African population comprising approximately 218 609 of the total population in 2022, up from 179 104 in 2011; the coloured group comprising 891 of the total population, up from 620 in 2011. The Indian/Asian population group comprises 265 of the total population, up from 224 in 2011. The white population group comprises 163 of the total population, down from 184 in 2011. The other unclassified population group comprises 573 of the total population, up from 171 in 2011.

Table 5: Population Composition by Group

Name	Numbers	%
Black African	218 609	99,01
Coloured	891	0,4
Indian/Asian	265	0,1
White	163	0,1
Other	573	0,3

Source: Stats SA Census, 2022

7.1.2 Age Profile

The population age group 0-14 makes up the highest population (80,279) of the municipality's total population, and the youth population size (15-34) makes up approximately 72,701 population size. The adult population (between the age of 35-59) accounts for 46,775 of the total population and senior residents (60+ year age group), accounts for approximately 20,863 of the total population.

Table 6: Total Population Size per Age Group

Age group	Population	%
0 – 14	80 279	35,21
15 – 34	72 701	31,88
35 – 59	46 775	20,51
60+	28 270	12,40
TOTAL	228 025	100

Source: Stats SA Census, 2022

7.1.3 Gender profile

According to Stats SA census 2022, there are 101 416 males and 119 203 females in the municipal area. This translates to about 54% of the population of uMzimkhulu being female and about 46% are male.

Table 7: Gender Profile

Gender	Numbers	%
Male	101 416	46
Female	119 203	54
TOTAL	220 619	100

Source: Stats SA Census, 2022

7.1.4 Education profile

The ULM has a total population of approximately 73,865 students attending school and 17,134 individuals not attending school in the age group of 5-24 years (Stats SA Census, 2022).

The SDF 2021-2022 highlights that a significant number of the youth in the ULM complete matric but do not pursue tertiary education, mainly due to poverty and limited access to higher education opportunities in the district. The only technical and vocational education and training (TVET) institution in the ULM is Esayidi TVET. It is crucial to assess the impact of this educational facility on the educational outcomes in the ULM.

Table 8: Attendance at an educational institution (5-24 years)

Attendance status	Numbers	%
Attending	73 865	81.17
Not-attending	17 134	18.83
TOTAL	94 277	100

Source: Stats SA Census, 2022

7.1.5 Employment rate

According to the amended IDP 2022/2023 and SDF 2021-2022, the ULM is characterized with high unemployment, with only 2% employed. The Stats SA census 2022 shows that the employment rate of the working-age population (15-64 years) has increased by 3.6% from 2011. This is caused, among other factors, by a lack of employment opportunities and high illiteracy rates.

7.1.6 Income Levels

Due to the high unemployment rate in uMzimkhulu, many residents do not have a monthly income. The SDF 2021-2022 shows that most individuals in uMzimkhulu earn between R1 and R1400, with fewer people earning higher incomes. This trend may be attributed to the municipality's low education levels and limited urban development, which hinders access to education beyond high school.

7.1.7 Poverty

The revised IDP for 2022/2023 highlights the significant impact of high unemployment in uMzimkhulu, leading to elevated poverty levels. A large number of families rely entirely on social grants for their basic needs. Over 77% of households earn less than R9,600 per year, placing them below the poverty threshold.

7.1.8 Household

According to the table below, in 2022, the most common type of housing in the uMzimkhulu surrounding area is "formal dwelling", with 22,723 houses falling into this category. Compared to the community survey in 2016, there has been a significant decrease in the number of traditional dwellings (from 32,474 in 2011 down to 16,896 houses). This decline could be attributed to residents moving from rural to urban areas within uMzimkhulu in search of better opportunities.

There has been a significant decrease in the number of informal dwellings in ULM, dropping from 621 in 2011 to 264 in 2022. In contrast, other types of dwelling have increased from 11 in 2011 to 181 in 2022

Table 9: Housing

Dwelling type	Census 2011		Census 2022	
	Numbers	%	Numbers	%
Formal dwelling	11 464	25,72	22 723	56,72
Traditional dwelling	32 474	72,86	16 896	42,17
Informal dwelling	621	1,4	264	0,66
Other	11	0,02	181	0,45
TOTAL	44 570	100	40 064	100

Source: Stats SA Census, 2022

The ULM IDP highlights that the municipality has experienced a slow pace in housing delivery by the Department of Human Settlements (DoHS). Although this is not within the municipality's direct control, the community has placed significant pressure on the municipality regarding housing issues. Delivering houses promptly is challenging due to the housing development procedures and processes within the DoHS. The municipality is collaborating closely with the department to address this issue.

7.1.9 Dependency ratio

The dependency ratio measures the number of dependents (individuals under 15 and over 65 years old) per 100 people. According to the IDP 2022/2023, a high dependency ratio can be challenging for caregivers, especially in rural areas where unemployment is common. In ULM, the dependency ratio decreased from 103.4% to 86.2% between 2001 and 2011. This high ratio places a strain on the working-age population and creates burden for both the municipality and the government. The municipality experienced an encouraging decline in the dependency ratio however; the ratio is still above the district (74.9%), provincial (58.5%), and national (52.7%) averages.

Table 10: Dependency ratio per 100 (15-64 years)

Year	Numbers	%
2001	103,4	54,96
2011	86,2	45,04
TOTAL	191,4	100

Source: uMzimkhulu Amended IDP 2022/2023

7.1.10 Key Economic sectors

The Harry Gwala District is mainly a rural area, as stated by the Harry Gwala District EMF (2018). Economic activities such as tourism and agriculture are closely tied to the environment. Factors like water, climate, soil, biodiversity, and scenic beauty play a significant role in the district's economic opportunities.

Based on the IDP 2022-2023, the government is the largest contributor to the ULM's Gross Value Added (GVA) at 34.9%, followed by wholesale (11.7%), community (11.7%), agriculture (9.7%), and manufacturing (8.6%). Despite having extensive agricultural land, the agriculture sector contributes minimally. Sectors with growth potential include wholesale/retail, manufacturing, and tourism.

SECTION 8

8. Motivation for the preferred site, activity and technology alternative

There are myriad reasons for the preferred site, the main being the obvious need for housing in the area as explained below.

The ever-increasing population requires a need to address the housing backlogs.

The SDF 2023/2024 report highlights that housing in uMzimkhulu suffers from historical planning issues and limited developable land. Additionally, a significant portion of the Central Business District (CBD) is situated in a floodplain. Developing a township allows for structured land use planning, ensuring that land is allocated for various purposes in a coordinated and sustainable manner.

This can help prevent unplanned development and environmental degradation. The influx of population has further strained the town's infrastructure, which was not designed to accommodate such rapid growth. This is evident in the increasing demand for infrastructure and social services. The establishment of a township could provide space for new housing developments and alleviate pressure on existing urban areas. It can also provide social integration. Well-designed townships can enhance social integration and community cohesion. Offering a variety of housing choices, recreational amenities, and public areas can encourage interaction and create a strong sense of community among residents of diverse backgrounds.

The proposed project will not only assist homeless residents living in poverty in Ward 16, but it will also assist the Harry Gwala residents. Establishing a township often goes hand in hand with

infrastructure development. This includes roads, water supply, sanitation, electricity, healthcare facilities, educational institutions, and recreational areas.

This is evident in the Bezweni preliminary bulk and internal services assessment report as it entails that the proposed projects will include the upgraded road, construction of stormwater facilities & pipe culverts, pavement, electricity, sanitation, and water supply. Developing these infrastructures in a planned manner can improve the quality of life for residents.

8.1. Housing accessibility

It is evident on the IDP 2022-2023 that uMzimkhulu has an issue with housing delivery. The IDP highlights that the Department of Human Settlements has been slow in delivering housing, prompting community pressure on the municipality to address the issue. Although housing delivery is not the municipality's direct responsibility, it is collaborating with the department to speed up the process.

The Bezweni farm housing development aimed at assessing the homeless living in unacceptable poverty-stricken conditions while systematically trying to address the ever-increasing housing demand within Ward 16. Building new housing within a township can make homeownership more accessible to a broader range of residents, including low-income families. This can contribute to reducing housing shortages and improving living standards.

8.2. Government services

According to the IDP 2022-2023, the uMzimkhulu Local Municipality is experiencing challenges with deliveries due to population growth.

Creating a township could enhance the delivery of essential services like healthcare, education, and public safety. By centralizing resources and facilities in an urban area, local authorities can efficiently cater to the needs of residents.

Establishing a township in the uMzimkhulu Local Municipality has the potential to bring benefits if approached carefully and in line with the municipality's development goals, while also considering the needs of residents and the wider socio-economic environment. However, it is important to be mindful of challenges such as land availability, financial limitations, and community involvement in the planning phase.

SECTION 9

9. Full description of the process followed to reach the proposed preferred alternative within the site

No alternatives were identified in the process as land for housing is scarce in the area and the site is easily available for public housing because of its location and intended to meet the needs of the local community.

As the land is in private ownership, any alternative would entail purchasing a range of properties that would have to go through an environmental process. This would discourage private developers who are the main catalysts for development in rural areas.

SECTION 10

10.1. Process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity

The impact assessment aims at identifying potential environmental impacts (both positive and negative impacts) and evaluating these impacts in terms of its significance. This assessment is

provided in the form of a systematic analysis framework to evaluate the nature, extent, duration, intensity, probability and significance of the various impacts. The significance of the impacts is considered both without and with mitigation and management measures. The significance of identified impacts will be determined using the approach outlined below. This approach incorporates two aspects for assessing the potential significance of impacts, namely occurrence and severity

The assessment of the potential impacts of the development is undertaken in accordance with the broad criteria required by the integrated environmental management procedure and includes the following:

Table 11: Impact Assessment Criteria

Extent/scale	Duration of the impact	Intensity	Probability	Determination of significance
<p>The physical extent of the impact.</p> <p>i) Footprint The impacted area extends only as far as the actual footprint of the activity.</p> <p>ii) Site The impact will affect the entire or substantial portion of the site/property.</p> <p>iii) Local The impact could affect the area including neighbouring properties and transport routes.</p> <p>iv) Regional Impact could be widespread with regional implication.</p>	<p>i) Short term The impact is quickly reversible within a period of one year, or limited to the construction phase.</p> <p>ii) Medium term The impact will have a medium-term lifespan (project lifespan 1 – 10 years).</p> <p>iii) Long term The impact will have a long-term lifespan (project lifespan > 10 years).</p> <p>iv) Permanent The impact will be permanent beyond the lifespan of the development</p>	<p>This criterion evaluates intensity of the impact and are rated as follows:</p> <p>i) Minor The activity will only have a minor impact on the affected environment in such a way that the natural processes or functions are not affected.</p> <p>ii) Low The activity will have a low impact on the affected environment.</p> <p>iii) Medium The activity will have a medium impact on the affected environment, but function and process continue, albeit in a modified way.</p>	<p>This describes the likelihood of the impacts actually occurring.</p> <p>i) Improbable The possibility of the impact occurring is highly improbable (less than 5% of impact occurring).</p> <p>ii) Low The possibility of the impact occurring is very low, due either to the circumstances, design or experience (between 5% to 20% of impact occurring).</p> <p>iii) Medium There is a possibility that the impact will occur to the extent that provision must be made therefore (between 20% to 80% of impact occurring).</p> <p>iv) High There is a high possibility that the impact will occur to the extent that provision must be</p>	<p>Significance is determined through a synthesis of the various impact characteristics and represents the combined effect of the extent, duration, intensity and probability of the impacts.</p> <p>i) No significance The impact is not substantial and does not require any mitigatory action.</p> <p>ii) Low The impact is of little importance, but may require limited mitigation.</p> <p>iii) Medium The impact is of importance and therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels.</p>

Extent/scale	Duration of the impact	Intensity	Probability	Determination of significance
<p>v) National Impact could have a widespread national level implication.</p>		<p>iv) High The activity will have a high impact on the affected environment which may be disturbed to the extent where it temporarily or permanently ceases.</p> <p>v) Very high The activity will have a very high impact on the affected environment which may be disturbed to the extent where it temporarily or permanently ceases</p>	<p>made therefore (between 80% to 95% of impact occurring).</p> <p>v) Definite The impact will definitely take place regardless of any prevention plans, and there can only be relied on mitigatory actions or contingency plans to contain the effect (between 95% to 100% of impact occurring).</p>	<p>iv) High The impact is of great importance. Failure to mitigate, with the objective of reducing the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation and management are essential</p>

10.2. Description of all environmental issues and risks that were identified during the environmental Impact Assessment process and an assessment of each impact:

10.2.1 Biodiversity Assessment

The biodiversity impact assessment (Appendix 3: Part D) was conducted by the specialist (Aim360 Environmental Solutions (PTY) Ltd) in October 2023.

(i) Floral assessment

Two types of terrestrial vegetation are present at the research site: the Moist Coast Hinterland Grassland and the Dry Coast Hinterland Grasslands, according to the National South African Vegetation Map (Mucina & Rutherford, 2006). According to Skowno et al. (2018) and Jewitt (2018), the Dry Coast Hinterland Grassland is classified as vulnerable to both national and provincial threats. According to Skowno et al. (2018), the Moist Coast Hinterland Grassland is classified as vulnerable nationally and as endangered provincially (Jewitt, 2018).

According to the Biodiversity Assessment Report (2023), the proposed three unique vegetation communities were discovered, namely in the surrounding area of the site:

- a) Vachellia Thicket
- b) Open Primary Grassland (part of the Dry Coast Hinterland Grassland - Vulnerable
- c) Eucalyptus Plantation

The ecological condition of the 'Open Grassland' community was found to be good whilst that of the other vegetation communities were poor. The poor ecological condition was attributed to the vegetation communities being of secondary nature. The sensitivity of the 'Open Grassland' community was found to be high whilst that of the Vachellia Thicket was low and that of the Eucalyptus Plantation was very low.

(ii) Fauna assessment

a) Mammals

According to the Animal Demography Unit (2022), about 11 mammal species occur within which the development site is situated and all of them are of Least Concern. The study area does not harbour any mammal species of conservation concern (SCC).

b) Avifauna

According to data from the Southern African Bald Atlas Project (SABAP2, 2023) a total of 136 bird species have been recorded. Of these species, eight (8) are considered threatened species as per the 2015 Eskom Red Data Book of Birds of South Africa, Lesotho and Swaziland. These are the Denham's Bustard, Grey Crowned Crane, Lanner Falcon, African Marsh Harrier, Southern Ground Hornbill, Secretary bird, Woolly Necked Stork and Cape Vulture. At least 5 are moderately likely to utilise the development site whilst there is a low probability that the other 3 will utilise the site.

c) Herpetofauna

Review of available Red Data Books highlighted that at least 1 species of conservation concern (i.e., KwaZulu-Natal Dwarf Chameleon) and 7 near-endemic or endemic species potentially occur within and around the study area. All 8 species have a low likelihood of being present on site.

(iii) Loss of faunal habitat and ecological structure

The development site was primarily used as a grazing land for cattle. Due to poor management of the grassland, it is unlikely that it harbours any species of conservation importance that are uniquely limited

to this grassland. The impact of habitat transformation on non-Red Data species that potentially breeding in the area, such as any rodents, will be local in extent, in that it will not have a significant effect on regional or national populations.

(iv) Spread of invasive alien plants

Invasive alien plant species will be able to spread throughout the study site if there are any disruptions to the indigenous vegetation communities. The residual vegetative communities will be degraded as a result, which will affect how well they operate.

Due to their natural ability to adapt to changing climatic conditions and their unique ability to invade a wide range of ecological niches, alien species typically outcompete indigenous species for resources such as water, light, space, and nutrients (Bromilow, 2010).

Due to their alteration of habitat structure, reduction of species variety and quality, alteration of nutrient cycling and productivity, and modification of food webs, alien invader plant species represent an ecological danger (Zedler, 2004).

There were some alien plants identified at the study site, so there's a chance that disturbances will encourage their growth. But the spread of the spread of alien plants may be curbed through implementation of an invasive alien plant control plan.

(v) Stormwater Management

Since increased harder surfaces prevent penetration while promoting higher runoff, stormwater is typically a big issue in urban development. Therefore, for developments with hardened surfaces, it is crucial to apply sustainable stormwater management techniques. Reducing the rate of runoff to a pre-development state and making sure that runoff is not focused onto nearby neighbouring sites or other infrastructure are the main principles of stormwater management.

(vi) Sewage infrastructure

Improperly managed construction activities can cause sedimentation in water bodies, impairing water clarity, reducing light penetration, and smothering aquatic habitats. Sedimentation can also clog waterways, disrupt navigation, and degrade habitat quality for aquatic organisms.

Construction activities associated with sewage infrastructure projects, such as excavation, dredging, and land clearing, can result in habitat destruction and fragmentation. Wetlands, riparian zones, and other sensitive habitats may be impacted, leading to loss of biodiversity and disruption of ecosystem functions.

(vii) Soil Erosion

Soil erosion in construction is a significant concern because it can lead to environmental degradation, loss of fertile soil, water pollution, and damage to infrastructure. Construction activities often disturb the natural landscape, exposing soil to erosion by wind, water, or other factors.

(viii) Geotechnical constraint

Based on the desk study and available geotechnical information, the following observations can be made about the site's geotechnical conditions and constraints:

- Seepage: The site has strong seepage, which will make excavation challenging and time-consuming due to continuous collapse of trench and foundation sidewalls.

- **Erodibility Potential:** The site's soils (Pietermaritzburg Formation and Karoo Aged Dolerite) are prone to erosion, with a high susceptibility to sheet and channelled water flow erosion (Category 1, according to the National Housing Code). Therefore, proper stormwater drainage measures are crucial during and after construction to prevent erosion and ponding around the completed house.

(ix) Sourcing of material

Sourcing material from unlicensed borrow pits and sand mines in an illegal and unplanned manner can be dangerous to the surrounding community and detrimental to the local environment at the site of the operation.

(x) Operation of construction vehicles and plants in and around the construction area

Heavy trucks, cement mixers, bulldozers, TLBs, generators, drills can have the following impacts:

- generation of dusty conditions impacting on air quality affecting community members, fauna and riparian areas along the construction route
- emissions from construction vehicles associated with the construction
- creating a nuisance to the surrounding residents and park users
- hydrocarbon spills can occur through careless management of fuel operated machinery such as pumps and generators

(xi) Generation, storage and disposal of waste during construction.

Improper storage of waste on site results in littering and harm to the environment and the surrounding community. Poor waste management in construction can have devastating environmental consequences, including soil, water, and air pollution, habitat destruction, climate change, groundwater contamination, noise and visual pollution, soil erosion, and loss of natural resources

(xii) Chemical toilets on site.

- Insufficient number of chemical toilets on site could result in staff having to use the surrounding environment as ablutions, resulting in contamination of soil and water resources, creating potential health impacts
- Incorrect disposal of toilet waste has the potential to contaminate groundwater.

(xiii) Potential Environmental Pollution

a) Air Pollution

The township development construction and operational phases can generate air pollutants like dust, particulate matter, and gases from vehicles and industrial activities. Increase in air pollution (dust) during construction (e.g. construction vehicles, excavation, earthworks, burning of waste products etc.).

b) Water Pollution

Construction can lead to soil erosion, sedimentation, and contamination of nearby water sources such as the Nyenyenzi river and Mvubukazi river.

Operational phases can generate wastewater and sewage. Loss of sensitive wetland habitats can occur if appropriate buffers are not maintained.

Spilling of sewage can occur into surrounding habitats and sensitive areas and pollution of groundwater/ surface water during construction phase with typical construction related pollutants such as oil and diesel, and enterobacteria/viruses and plant nutrients may occur if sanitation for construction workers is not properly managed.

It is recommended that samples for a comprehensive analysis are collected at the recommended sites for baseline monitoring, in order to establish a more exact relationship between the variables that are measured as part of the National Water Quality Monitoring Network and the additional variables that are required for the baseline study. This can then be used for the purposes of correlation, should this be required.

10.3 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

Table 12: Significance scoring used for each potential impact.

	Score	Label	Criteria
Duration	1	Very short term	0-1 years
	2	Short-term	2-5 years
	3	Medium-term	5-15 years
	4	Long-term	>15 years
	5	Permanent	Permanent
Extent	1	Minor	Limited to the immediate site of the development
	2	Local	Within the general area of the town, or study area, or a defined Area of Impact
	3	Regional	Affecting the region, municipality, or province
	4	National	Country level
	5	International	International level
Magnitude	0	Negligible	Very small to no effect on the environment
	1	Minor	Slight impact on the environment
	2	Low	Small impact on the environment
	3	Moderate	A moderate impact on the environment
	4	High	The impacts on the environment are large
	5	Very high	The impacts are extremely high and could constitute a fatal flaw
Probability	1	Very improbable	Probably will not happen
	2	Improbable	Some possibility, but low likelihood
	3	Probable	Distinct possibility
	4	Highly probable	Most likely
	5	Definite	The impact will occur

Significance Points = (Magnitude + Duration + Extent) x Probability. The maximum value is 100 Significance Points

Potential Environmental Impacts are rated as high, moderate or low significance as per the following:

Table 13: Significance weighting.

Score	Label	Motivation
<10	Negligible	The impact is very small to absent
10-20	Low	where this impact would not have a direct influence on the decision to develop in the area
20-50	Medium	where the impact could influence the decision to develop in the area unless it is effectively mitigated
50-70	High	where the impact must have an influence on the decision process to develop in the area
>70	Very High	Where the impact may constitute a fatal flaw for the project

10.3.1 Loss of fauna habitat and ecological structure

Potential Impact & Recommended Mitigation

- All construction activities must be carried out according to the generally accepted environmental best practice and the temporal and spatial footprint of the development and its servitude must be kept to a minimum. In particular, care must be taken in the vicinity of the wetlands and existing access routes must be used for access.
- The construction area, including stockpiling areas, are to be clearly demarcated and it must be ensured that all activities remain within the demarcated footprint area. No activities are to infringe upon any watercourses.
- Any natural areas beyond the footprint of the construction area, which have been disturbed, must be rehabilitated using indigenous plant species.
- Education and awareness campaigns on faunal species and their habitat are recommended to help increase awareness, respect and responsibility towards the environment for all staff and contractor

Construction phase									
Probability		Duration		Extent		Magnitude		Significance (Without mitigation)	Significance (with mitigation)
Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation		
5	3	5	5	1	1	5	5	55 high	33 medium

Operation phase									
Probability		Duration		Extent		Magnitude		Significance (Without mitigation)	Significance (with mitigation)
Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation		
3	2	3	3	1	1	2	2	14 low	12 low

10.3.2 Spread of invasive alien plants

Potential Impact & Recommended Mitigation

- In accordance with the requirements of the National Environmental Management: Biodiversity Act (10/2004): Alien and Invasive Species Regulations, the Applicant/Contractor must ensure alien invasive species and noxious weeds are effectively controlled by implementing a site-specific Alien Invasive Eradication Programme.
- Vegetation clearing should be kept to a minimum, and this should only occur where it is absolutely necessary.
- Rehabilitate all disturbed areas as soon as construction is completed.
- Ensure that all personnel have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and on-going minimisation of environmental disturbance and this can be achieved through provision of appropriate awareness to all personnel.
- The location of the site office and Contractor's camp must be situated outside environmental sensitive areas in agreement with the ECO.
- The control and eradication of a listed invasive alien species must be carried out by means of methods that are appropriate for the species concerned and the environment in which it occurs in.
- All invasive alien plants must be removed from the construction area.
- Mechanical control methods such as digging, hoeing, pulling out of weeds and invasive plants are recommended.
- Use of chemical treatment methods must be kept to a minimum.
- Where chemical treatment methods are used, the contractor must ensure that they use watercourse friendly herbicides.
- The methods employed to control and eradicate a listed invasive species must also be directed at the new growth, propagating material and re-growth of such invasive species in order to prevent such species from producing offspring, forming seed, regenerating or re-establishing itself in any manner.

Construction phase									
Probability		Duration		Extent		Magnitude		Significance (Without mitigation)	Significance (with mitigation)
Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation		
5	3	2	2	1.5	1.5	3	2.5	25.5 medium	16.3 low

Operation phase									
Probability		Duration		Extent		Magnitude		Significance (Without mitigation)	Significance (with mitigation)
Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation		
5	3	2	2	1.5	1.5	3	3	25.5 medium	19.5 low

10.3.3 Loss of Faunal & Avifaunal Species of Conservation Concern (SCC) Potential Impact & Recommended Mitigation

Fauna Search and Rescue

- A search and rescue operation must be undertaken prior to the commencement of construction on site.
- Translocation of any faunal species must be undertaken by a qualified ecologist.
- Any burrows or holes must be checked for fauna that either may have occupied the area prior to commencement of construction

Construction phase									
Probability		Duration		Extent		Magnitude		Significance (Without mitigation)	Significance (with mitigation)
Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation		
4	2	2	2	2	2	2	2	16 low	12 low

Operation phase									
Probability		Duration		Extent		Magnitude		Significance (Without mitigation)	Significance (with mitigation)
Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation		
4	2	2	2	2	2	2	2	16	12

								medium	low
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10.3.4 Loss of Plant Species of Conservation Concern (SCC)

Potential Impact & Recommended Mitigation

Plant Search and Rescue

- A search and rescue operation must be undertaken prior to the commencement of construction on site.
- If any protected plant species are found within the construction footprint, plant permits must be applied for and received from the Ezemvelo KZN Wildlife before breaking ground.
- Translocation of any plant species must be undertaken by a qualified ecologist.
- If any protected species die during the translocation process, specimen loss must be offset at a ratio of 1:3.

Construction phase									
Probability		Duration		Extent		Magnitude		Significance (Without mitigation)	Significance (with mitigation)
Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation		
4	2	2	2	2	2	3	3	24 medium	18 low

Operation phase									
Probability		Duration		Extent		Magnitude		Significance (Without mitigation)	Significance (with mitigation)
Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation		
4	2	2	2	2	2	2	2	16 low	12 low

10.3.5 Storm water Management

Potential Impact & Recommended Mitigation

Plan and install appropriate stormwater control measures.

- Increase in storm water run-off resulting from construction activities must be estimated and the drainage system assessed accordingly.
- If vegetation is to be removed, it must be done in phases to ensure that a minimum area of soil is exposed to potential erosion at any one time.
- Temporary cut off drains, grassed or rock-pitched diversion ditches and berms may be required to capture storm-water and promote infiltration or to divert run-off away from exposed soil or construction areas.

- Contractors must not in any way modify nor damage the banks or beds of streams or rivers, wetlands, other open water bodies and drainage lines adjacent to or within the designated area.
- Earth, stone and rubble is to be properly disposed of to prevent obstruction of natural water pathways over the site. These materials must not be placed in storm-water channels, drainage lines or rivers.
- Storm-water outfalls should be designed to reduce flow velocity and avoid stream bank and soil erosion.

Construction phase									
Probability		Duration		Extent		Magnitude		Significance (Without mitigation)	Significance (with mitigation)
Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation		
5	4	2	1	2	1	4	3	40 medium	20 low

Operation phase									
Probability		Duration		Extent		Magnitude		Significance (Without mitigation)	Significance (with mitigation)
Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation		
4	2	2	1	2	1	3	2	28 medium	8 low

10.3.6 Sewage infrastructure

Potential Impact & Recommended Mitigation

- Wastewater must be disposed of via the municipal sewer infrastructure.
- All sewer pump stations must have a backup power source or the entire sewer system must operate using gravity alone.
- All sewer pump stations must have a backup pump.
- All manholes located within 30m of the edge of any wetland habitat must have a bund for handling any minor leakages/overflows from the manholes

Construction phase									
Probability		Duration		Extent		Magnitude		Significance (Without mitigation)	Significance
Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation		

mitigati on		mitigati on		mitigati on		mitigati on		mitigatio n	(with mitigatio n)
5	3	3	2	2	1	4	3	45 medium	18 low

Operation phase									
Probability		Duration		Extent		Magnitude		Significa nce (Without mitigatio n)	Significa nce (with mitigatio n)
Withou t mitigati on	With mitigati on	Withou t mitigati on	With mitigati on	Withou t mitigati on	With mitigati on	Withou t mitigati on	With mitigati on		
4	3	2	1	2	1	3	2	28 medium	12 low

10.3.7 Soil Erosion

Potential Impact & Recommended Mitigation

- Where the risk of soil erosion is high, a silt fence / curtain must be installed along the downslope edge of the construction footprint.
- The silt fence / curtain must be maintained regularly to ensure that they function effectively.
- After every rainfall event, the contractor must check the site for erosion damage and immediately repair any damage recorded.

Soil Management

- Prior to commencing with earthworks, the topsoil must be stripped and stockpiled separately from subsoil.
- Topsoil must be kept for use during rehabilitation of landscaped areas.
- Topsoil must be stockpiled in stockpiles not exceeding 2m in height.
- All stockpiles must be kept free of weeds and invasive alien plants.
- If soil stockpiles are at risk of being eroded, they must be secured with sandbags around the base of the stockpile.
- All stockpiles must be established within the development footprint.

Construction phase									
Probability		Duration		Extent		Magnitude		Significa nce (Without mitigatio n)	Significa nce (with mitigatio n)
Withou t mitigati on	With mitigati on	Withou t mitigati on	With mitigati on	Withou t mitigati on	With mitigati on	Withou t mitigati on	With mitigati on		
4	3	2	1	2	1	4	2	32 medium	12 low

Operation phase									
Probability		Duration		Extent		Magnitude		Significance (Without mitigation)	Significance (with mitigation)
Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation		
4	3	2	1	2	1	4	3	32 medium	15 low

10.3.8 Water contamination and pollution

➤ Potential Impact & Recommended Mitigation

- Sediment and Erosion Control: Implement erosion and sediment control measures such as silt fences, sediment basins, and erosion control blankets to prevent soil erosion and sedimentation into nearby water bodies.
- Stormwater Management: Design and implement stormwater management systems to capture, detain, and treat stormwater runoff from construction sites before it enters water bodies. This can include the use of retention ponds, bioswales, and permeable surfaces.
- Proper Waste Management: Establish procedures for the proper disposal and management of construction waste, including hazardous materials such as paints, solvents, and chemicals. Ensure that waste is stored, handled, and disposed of according to regulations to prevent leaching into groundwater or surface water.
- Spill Prevention and Response: Develop spill prevention plans and train construction workers on spill response procedures to quickly contain and clean up any spills of hazardous materials that could contaminate water sources.
- Construction Best Practices: Implement construction best practices such as minimizing disturbed areas, phasing construction activities to reduce exposed soil, and using drip pans or secondary containment for equipment and materials to prevent leaks and spills.

Construction phase									
Probability		Duration		Extent		Magnitude		Significance (Without mitigation)	Significance (with mitigation)
Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation		
4	3	2	1	2	1	4	1	32 medium	9 low

Operation phase					
Probability		Duration		Extent	Magnitude

Without t mitigati on	With mitigati on	Withou t mitigati on	With mitigati on	Withou t mitigati on	With mitigati on	Withou t mitigati on	With mitigati on	Significa nce (Without mitigatio n	Significa nce (with mitigatio n)
3	2	2	1	2	1	4	3	24 medium	8 low

10.3.9 Sourcing of material

➤ Potential Impact & Recommended Mitigation

Bedding material is often sourced from local borrow pits or sand mines. The following criteria must be adhered to:

- Any local borrow pit or sand mine used must be a permitted source through The Department of Mineral Resources and Energy (DMRE).
- The contractor excavating the material must do so within the parameters of the mining permit, adhering to the EMP conditions for that particular site.
- The borrow pit and sand mine must be shaped post excavation.

Construction phase									
Probability		Duration		Extent		Magnitude		Significa nce (Without mitigatio n	Significa nce (with mitigatio n)
Without t mitigati on	With mitigati on	Without t mitigati on	With mitigati on	Without t mitigati on	With mitigati on	Without t mitigati on	With mitigati on		
4	3	2	1	2	1	4	2	32 medium	12 low

10.3.10 Operation of construction vehicles and plants in and around the construction area

➤ Potential Impact & Recommended Mitigation

There will be increased dust generated during the construction phase by i.e., heavy trucks, cement mixers, bulldozers, TLBs, generators, drills. However, this will have a temporary impact i.e., the site will be worked continuously for a few months until construction is completed. Further to this:

- Vehicle speed limits within the construction areas must be reduced to 40km/hr to reduce the amount of dust raised to and from the site.
- The material being transported to the site in the back of the trucks must be covered.
- Water carts must be used on site should dust levels elevate to a nuisance level
- Shade cloth must be utilised for stockpiled materials where required.
- The applicant must comply with the National Dust Regulations (Government Notice R827, 2013) with regards to dust levels produced on site
- All construction vehicles operating on the site must be fitted with the appropriate exhausts to reduce emissions into the atmosphere.
- The construction phase of the project will see an increase in vehicles moving through the area and the park which will result in increased noise. All construction vehicles operating on site must be fitted with standard silencers to reduce the noise levels produced.

- All fuel storage areas must be located on hard surfaced areas and bunded to 110% capacity of the containers stored therein.
- Drip trays must be used under all fuel operated machinery at all times.

Construction phase									
Probability		Duration		Extent		Magnitude		Significance (Without mitigation)	Significance (with mitigation)
Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation		
3	2	2	1	2	1	4	3	24 medium	8 low

10.3.11 Generation, storage and disposal of waste during construction.

➤ Potential Impact Recommended Mitigation

The construction phase of the project will see an increase in workers on site and therefore an increase in waste in the area.

- Littering shall not be permitted in the project area.
- Designated waste storage areas with appropriate waste receptacles must be set up within the construction site camp.
- Waste management will be controlled through the implementation of the EMP. This impact can be managed and mitigated

Construction phase									
Probability		Duration		Extent		Magnitude		Significance (Without mitigation)	Significance (with mitigation)
Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation		
4	3	2	1	2	1	4	2	32 medium	12 low

10.3.12 Chemical toilets on site.

➤ Potential Impact Recommended Mitigation

- Appropriate and sufficient toilet facilities (1 toilet per 15 employees) must be provided by the contractor.
- All toilet facilities must be checked on a daily basis.
- All toilet facilities must be emptied and cleaned on a weekly basis.
- A registered waste removal contractor must remove sewage waste from the site to a permitted Waste Water Treatment Facility
- Safe disposal slips for the disposal of toilet waste must be obtained and kept on-site as proof of safe disposal.

Construction phase									
Probability		Duration		Extent		Magnitude		Significance (Without mitigation)	Significance (with mitigation)
Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation		
4	3	2	1	2	1	4	2	32 medium	12 low

10.4. Heritage Impact Assessment

The Heritage Impact Assessment (HIA) (Appendix 3: Part C) has been undertaken by the eThembeni CHM in October 2023 on a portion of a remainder of Ebezweni Farm No. 18223 which is the subject of Environmental Authorization in terms of the National Environmental Management Act 107 of 1998 as amended (NEMA) and in compliance with Section 38 of the National Heritage Resources Act 25 of 1999 (NHRA).

According to the HIA report, no heritage sites/resources of significance within or immediately adjacent to the proposed project footprint area were. The specialist noted that no construction activities associated with the proposed project had begun at the time of their site visit on 12 October 2023. The underlying Pietermaritzburg Formation shale lithology is not considered to be of high palaeontological significance. Consequently, no further palaeontological assessment is recommended.

Table 14: Heritage Resource Observations

Heritage Resource Type	Observation
Ecofacts	None were identified within the proposed development area.
Places, buildings, structures, and equipment	None were identified within the proposed development area.
Places to which oral traditions are attached or which are associated with living heritage	None were identified within the proposed development area.
Historical settlements and townscapes	None were identified within the proposed development area.
Landscapes and natural features of significance	None were identified within the proposed development area.
Geological sites of scientific or cultural importance	None were identified within the proposed development area.
Archaeological sites	None were identified within the proposed development area.
Graves and burial grounds	None were identified within the proposed development area.
Public monuments and memorials	None were identified within the proposed development area.
Battlefields	None were identified within the proposed development area.

i) Assessment of Development Impact

Low to negligible

ii) Recommended Mitigation Measures

None

iii) Recommended Monitoring

None.

10.5. Traffic Impact Assessment

The Traffic Impact Assessment is a study that is required to assess the impact of the site on the surrounding road network and to evaluate the necessity of implementing any mitigating road upgrades and / or intersection improvements.

The Traffic Impact Assessment, compiled by Trans Traffic, details the extent of traffic study; trip generation; traffic impact; access and parking requirements; and public and non-motorised transport of the proposed site, as well as the surrounding road network. The Traffic Impact Assessment is attached as Appendix 3: Part E.

A site visit was undertaken on Thursday 28 September 2023 during the typical weekday AM and PM peak period.

The intersection operating performance and access arrangements were observed during the peak period site investigations. The following are some of the important observations during the AM and PM peak hour site visit:

- Mini- bus taxis and trucks were observed travelling P 749 during the peak hour.
- Minor Pedestrian activity was observed along Gravel Road during peak hour;
- No queueing observed at any of the intersections of during peak hours.
- Mostly private vehicles were observed at the intersection P 749/ Gravel Road during peak hours.

Based on the findings of this Traffic Impact Assessment (TIA) study, it is recommended that the proposed development will not have a negative impact on the existing road network within the study area. It is recommended that be favourably considered from a traffic engineering point of view by the relevant regulating authorities and be supported.

Table 15: TIA Recommendations

Other Recommendations						
1. It is recommended that the proposed access should be designed with a minimum width for two-way traffic in compliance with the requirements and specifications of the KZN DoT Planning and Road division. The minimal shoulder sight distance on a road with a 60 km/h design speed for an entry point under a stop condition. The development site's entrance point has a sight distance that is sufficient in both directions because the line of sight there is more than 90.0 meters.	2. It is expected that the public transportation system will need to accommodate the pedestrians that the proposed development may create. It is additionally suggested that the interior major road's layout include bus and taxi laybys.	3. All parking facilities, accesses and driveways are to be designed and dimensioned in accordance with the schedule of guidelines for off-street parking as per the uMzimkhulu Municipality standards and specifications for off-street parking.	4. The Intersection of P749 / Gravel Road is recommended to be upgraded with more of tar road to avoid gravel spillage on the main road in order to accommodate proposed Development.	5. Gravel Road is recommended to be upgraded to serve two-way motor traffic with side walk for pedestrians.	6. All internal road is recommended to accommodate two-way traffic minimum of 7m wide road and 2m pedestrian side walk with public transport facility by means of bus / taxi stop	7. P749 is must provide bus/ Taxi Drop off zones in line with the proposed layout in order to potential mitigate the potential cut over pedestrians from the development in order to get public transport.

SECTION 11

11. Summary of the findings and impact management measures

11.1 Biodiversity Assessment

The findings are reported below:

11.1.1 Floral assessment

The proposed study site includes two types of terrestrial vegetation: dry coast hinterland grasslands and moist coast hinterland grasslands. The dry coast hinterland grasslands are classified as vulnerable at the national and provincial levels. The moist coast hinterland grasslands are classified as vulnerable nationally and endangered provincially.

11.1.2 Ecosystem Threat Status

The ecosystem threat status is an indicator of an ecosystem's well-being, based on the level of change in structure, function, or composition. It is a metric used to assess the level of threat or risk faced by a particular ecosystem. It provides valuable information about the current condition of an ecosystem and helps guide conservation efforts and management decisions. According to the biodiversity impact assessment, the proposed development is located within a vulnerable (VU) and endangered (EN) ecosystem.

11.1.3 Ecosystem Project Level

The ecosystem project level determines whether an area is a protected or non-protected area. Protected areas are areas of land or sea that are protected by law and managed mainly for biodiversity conservation. Protected areas are vital for ecological sustainability and adaptation to climate change, serving as nodes in our ecological infrastructure network.

Protected areas recognized in the National Environmental Management: Protected Areas Act (Act 57 of 2003) are considered formally protected areas in the National Protected Area Expansion Strategy (NPAES).

The proposed development site is located within a non-protected area. The biodiversity assessment shows that this site is located 32 km away from Ezemvelo KZN Wildlife protected areas, which are Ntsikeni, Gxalingenwa, and KwaYili.

11.1.4 Critical Biodiversity Areas

South African National Biodiversity (SANBI) defines critical biodiversity areas (CBAs) as areas that are mostly in a natural or near-natural state at the time of the conservation assessment, and associated management guidelines typically require that they be maintained in a natural or near-natural state.

About 40% of the proposed development site is classified as a Critical Biodiversity Area: Optimal Biodiversity Area: Optimal Area (CBA: Optimal) as per the KZN BSP dataset. This is due to the presence of the following conservation important biodiversity resources; *Odontomelus eshowe* (Grasshopper); *Doratogonus infragilis* (Millipede) and *Euonyma lymneaeformis* (Mollusc).

11.1.5 Important Birds and Biodiversity Areas (IBA's)

The Important Birds & Biodiversity Areas (IBAs) are sites of global significance for bird conservation, identified nationally through multi-stakeholder processes using globally standardised, quantitative and scientifically agreed criteria. Essentially, these are the most important sites for conserving.

The proposed development is located within an unprotected IBA, named as KZN Mistbelt Grasslands (No. SA078). Another IBA is located approximately 7.5 km away from the proposed development site.

11.1.6 Vegetation type

The proposed project is situated in a grassland biome. According to the biodiversity impact assessment report, there are three vegetation communities that were mapped as dominant on the proposed development site namely: open primary grassland, vachellia thicket, and eucalyptus plantation.

The Open Primary Grassland covers most of the proposed development site and this vegetation community belongs to the Dry Coast Hinterland Grassland. The grassland of this vegetation community is dominated by medium-tall grasses and scattered thorny trees. The grassland has a poor diversity of forbs.

The report highlighted the disturbances that were identified during the fieldwork on the site, which included prescribed veld burning, overgrazed, and informal footpaths. It was reported that some grasses were difficult to identify due to the burnt grassland.

It was also reported that the open primary grassland's ecological condition was good compared to the other vegetation communities (vachellia thicket and eucalyptus plantation) which had poor ecological conditions due to them being of secondary nature. The open primary grassland community had a high sensitivity, whereas vachellia thicket had a low sensitivity, and the eucalyptus plantation had a very low sensitivity.

Overall, the open primary grassland (dry coast hinterland grassland) has a high species composition, contiguous structural intactness, good ecological condition, threats status vulnerability, and high sensitivity.

In the proposed development site there were 5 species of conservation concern found during the fieldwork; namely: *Aloe ferox*, *Aloe maculate*, *Hypoxis hemerocallidea*, *Hypoxis spp.*, and *Scadoxus puniceus*. It was advised that these species will need to be translocated before the construction commence.

11.1.7 Indigenous flora and Invasive Alien Plants (IAPs)

The proposed development site is characterised by some indigenous vegetation. The indigenous flora contained about 33 species of indigenous flora recorded within the proposed development site. Among these, 4 of the indigenous species are provincially protected and 28 of the indigenous species are of least concern (LC). The proposed study site recorded 9 alien species.

11.1.8 Faunal Assessment

a) Mammals

The mammal diversity in the project area is limited, with only 11 mammal species considered present, all of which are classified as of least concern. The biodiversity assessment revealed that the proposed study site does not support any mammal species of conservation concern. Additionally, the habitat in the study site has been significantly altered by human activities, leading to a low likelihood of mammals being present on site.

b) Herpetofauna (Reptiles and Amphibians)

Overall, herpetofauna diversity in the project area was considered depauperate, with only 8 species recorded on the study site. One of these species is of conservation concern, and the other 7 are near-endemic or endemic species that may be found within or around the study area. The likelihood of all 8 species being present on the site is low.

c) Avifaunal

Based on the desktop study undertaken from the Southern African Bald Atlas Project data total of 136 bird species have been recorded within pentads 3010_2950 and 3010_2955. Among these species, eight (8) are classified as threatened according to the 2015 Eskom Red Data Book of Birds of South Africa, Lesotho, and Swaziland. It is moderately likely that at least 5 of these species will be found on the development site, while the remaining 3 are less likely to be present.

During the site visit, only one species (*Threskiornis aethiopicus*) was observed, classified as of least concern. Additionally, a nest in the *Vachellia sieberiana* tree was recorded.

11.1.9 Habitat Types and Sensitivity

The various habitat types that make up the assessment region were identified, delineated and given a sensitivity rating. The areas designated as low sensitivity are those where specialists believed that factors like human activity and/or the presence of foreign invasive species had had the greatest impact and/or significantly altered the original state of the place. High sensitivity habitats are ones that, if changed, would significantly reduce the biodiversity of the area.

The assessment area was divided into three distinct habitat types: open grassland, vachellia thicket, and eucalyptus plantation. The open grassland community was in good ecological condition, while the vachellia thicket and eucalyptus plantation were in poor condition due to their secondary nature. The open grassland community was found to be highly sensitive, while the vachellia thicket and eucalyptus plantation had low and very low sensitivity, respectively.

SECTION 12.

12. Environmental Impact Statement

Despite the potential environmental impacts within the challenging context, the development can proceed if the mitigation measures proposed are implemented.

Based on the specialist studies undertaken, the biodiversity impact assessment indicates that the proposed development could have a medium to high impact significance without proper mitigation measures. However, implementing recommended mitigation measures would reduce the impact to low - medium levels.

The Heritage Impact Assessment and Traffic Impact Assessment suggest that the proposed development will not cause any significant impact. In the event of unforeseen circumstances, mitigation measures and recommendations are provided in this report.

12.1. Consideration of Alternatives

The identification and consideration of alternatives are essential practices in environmental assessment procedures worldwide. The 2014 EIA Regulations (as amended) mandate the consideration of alternatives during the EIA process.

Alternatives are different ways to achieve the purpose and requirements of a proposed activity. They can include:

- Activity Alternatives: Changing the nature of the proposed activity, usually at a strategic level.
- Location Alternatives: Considering different locations for the project or its components.
- Layout Alternatives: Exploring different spatial arrangements for the activity on a specific site.
- Scheduling Alternatives: Looking at different phasing options for the development.
- Infrastructure/Input Alternatives: Considering various technological or equipment options to achieve the same end result.

12.1.2. Activity Alternatives

Activity alternatives refer to the consideration of alternatives requiring a change in the nature of the proposed activity to be undertaken.

The uMzimkhulu Local Municipality faces a significant demand for formal housing. The preferred course of action is to build housing units along with necessary infrastructure like water and sewerage pipelines. If this plan is not approved, the housing demand in the municipality will persist. An alternative of leaving the site vacant is not viable as it may lead to illegal occupation, land invasions, and dumping.

12.1.3. Location Alternatives

The uMzimkhulu Local Municipality (Applicant) has identified the location for the proposed Bezweni Farm Township Establishment, which is a municipal project funded by the Department of Human Settlements. The site is currently vacant and is bordered by the closed Nyenyezi SP School and the uMzimkhulu Hospital.

12.1.4. Layout Alternatives

The preferred draft development layout was prepared by Mlala Emazweni in April, 22, 2024 and is attached as Appendix 3, Part C.

12.1.5. Scheduling Alternatives

The specific timeline for implementing and completing the residential development project is not yet determined. However, due to the housing demand in the uMzimkhulu Local Municipality, construction is expected to start promptly once all required approvals, including environmental authorization, are secured. No alternative schedules have been considered at this time.

12.1.6. Input Alternatives

During the construction phase of the project, a variety of materials may be used for both infrastructure and top structure purposes. This could include different types of bricks, roofing materials, and furnishings. Specific details about the materials and appearance of individual housing structures are not yet available at this planning stage.

12.1.7. Infrastructure Alternatives

The following subsections summarize the different sanitation options to be considered.

- **Sanitation**

For the purposes of this project some potential sanitation levels of services will be considered, such as:

- Upgrade of sewer connection system which connects to the main sewer plant in town.
- The option of an onsite septic tank to treat sewage on site was considered as an option. However, the disadvantage of a septic system is that its may overflow during heavy rains, thereby flooding adjacent properties, especially those on low lying areas, posing health hazard and fights amongst neighbours.
- Upgrade of the waste water treatment to accommodate for a new housing development

A detailed description of this information has been provided on the Engineering report (attached as Appendix 3, Part B)

12.2. “No-go” Alternatives

The "no-go" alternative should always be included in the EIA process. It means that the project will not proceed, maintaining the current status quo. If the development does not go ahead, the following outcomes will occur:

- Housing demand in the municipality will stay the same.
- The vacant land will be at risk of illegal occupation and dumping.
- Indigenous vegetation will not be disturbed.
- Wetland seepage areas will not be filled in.
- There will be no soil erosion or pollution.

SECTION 13.

13. Impact Management Measures

13.1. Loss of fauna habitat and ecological structure

➤ Potential Impact Recommended Mitigation

- All construction activities must be carried out according to the generally accepted environmental best practice and the temporal and spatial footprint of the development and its servitude must be kept to a minimum. In particular, care must be taken in the vicinity of the wetlands and existing access routes must be used for access.
- It is necessary to clearly demarcate the construction area, which includes the stockpile regions, and to make sure that all activities stay inside the defined footprint area. Watercourses must not be obstructed by activities
- Any natural areas beyond the footprint of the construction area, which have been disturbed, must be rehabilitated using indigenous plant species.
- Education and awareness campaigns on faunal species and their habitat are recommended to help increase awareness, respect and responsibility towards the environment for all staff and contractor

13.2 Spread of invasive alien plants

➤ Potential Impact Recommended Mitigation

- The Applicant/Contractor shall ensure that noxious weeds and alien invasive species are effectively controlled by implementing a site-specific.
- Alien Invasive Eradication Programme in compliance with the requirements of the National Environmental Management: Biodiversity Act (10/2004): Alien and Invasive Species Regulations.
- Minimum vegetation clearing should only be done when necessary.
- Rehabilitate any affected sites as soon as work is finished, unless it is absolutely essential.
- Ensure that every employee possesses the necessary environmental knowledge and expertise to guarantee ongoing environmental due diligence and ongoing mitigation of environmental disruption. This might include attained by giving all staff members the necessary awareness.
- The location of the site office and Contractor's camp must be situated outside

environmental sensitive areas in agreement with the ECO.

- The control and eradication of a listed invasive alien species must be carried out by means of methods that are appropriate for the species concerned and the environment in which it occurs in.
- All invasive alien plants must be removed from the construction area.
- Mechanical control methods such as digging, hoeing, pulling out of weeds and invasive plants are recommended.
- The contractor must make sure that he employs herbicides that are friendly to watercourses when using chemical treatment methods, and such methods must be used sparingly.
- In order to stop a listed invasive species from reproducing, making seeds, regenerating, or re-establishing itself in any way, control and eradication strategies must also target the invasive species' new growth, propagation material, and re-growth.

13.3 Loss of Faunal & Avifaunal Species of Conservation Concern (SCC)

➤ Potential Impact Recommended Mitigation

Fauna Search and Rescue

- A search and rescue operation must be undertaken prior to the commencement of construction on site.
- Translocation of any faunal species must be undertaken by a qualified ecologist.
- Any burrows or holes must be checked for fauna that either may have occupied the area prior to commencement of construction

13.4 Loss of Plant Species of Conservation Concern (SCC)

➤ Potential Impact Recommended Mitigation

Plant Search and Rescue

- A search and rescue operation must be undertaken prior to the commencement of construction on site.
- If any protected plant species are found within the construction footprint, plant permits must be applied for and received from the Ezemvelo KZN Wildlife before breaking ground.
- Translocation of any plant species must be undertaken by a qualified ecologist.
- If any protected species die during the translocation process, specimen loss must be offset at a ratio of 1:3.

13.5 Storm water Management

➤ Potential Impact Recommended Mitigation

Plan and install appropriate stormwater control measures.

- Increase in storm water run-off resulting from construction activities must be estimated and the drainage system assessed accordingly.
- If vegetation is to be removed, it must be done in phases to ensure that a minimum area of soil is exposed to potential erosion at any one time.
- Temporary cut-off drains, grassed or rock-pitched diversion ditches and berms may be required to capture storm-water and promote infiltration or to divert run-off away from exposed soil or construction areas.

- Contractors must not in any way modify nor damage the banks or beds of streams or rivers, wetlands, other open water bodies, and drainage lines adjacent to or within the designated area.
- Earth, stone, and rubble is to be properly disposed of to prevent obstruction of natural water pathways over the site. These materials must not be placed in storm-water channels, drainage lines, or rivers.
- Storm-water outfalls should be designed to reduce flow velocity and avoid stream bank and soil erosion.

13.6 Sewage infrastructure

➤ Potential Impact Recommended Mitigation

- Wastewater must be disposed of via the municipal sewer infrastructure.
- All sewer pump stations must have a backup power source or the entire sewer system must operate using gravity alone.
- All sewer pump stations must have a backup pump.
- All manholes located within 30m of the edge of any wetland habitat must have a bund for handling any minor leakages/overflows from the manholes

13.7 Soil Erosion

➤ Potential Impact Recommended Mitigation

- Where the risk of soil erosion is high, a silt fence / curtain must be installed along the downslope edge of the construction footprint.
- The silt fence / curtain must be maintained regularly to ensure that they function effectively.
- After every rainfall event, the contractor must check the site for erosion damage and immediately repair any damage recorded.

➤ Soil Management

- Prior to commencing with earthworks, the topsoil must be stripped and stockpiled separately from subsoil.
- Topsoil must be kept for use during rehabilitation of landscaped areas.
- Topsoil must be stockpiled in stockpiles not exceeding 2m in height.
- All stockpiles must be kept free of weeds and invasive alien plants.
- If soil stockpiles are at risk of being eroded, they must be secured with sandbags around the base of the stockpile.
- All stockpiles must be established within the development footprint.

13.8 Pollution Prevention Measures

- The affected area needs to be restored right away if any soil has been contaminated by hydrocarbons (fuel and oils), asphalt, bitumen, binding agents, concrete, or any other chemical.
- During the construction period, workers must have access to chemical toilets. For every ten workers, there must be one chemical restroom available.
- Fuel must be stored in a bunded structure with a roof. The bund must be able to contain at least 110% of the volumes of fuel

- Chemical toilets need to have routine maintenance performed by a licensed service provider, and waybills need to be kept as documentation of that maintenance.
- All chemicals and dangerous materials must be mixed and/or decanted onto a tray, shutter boards, or an impermeable surface.
- Drip trays should be utilised at all dispensing areas.
- When a chemical spill kit is used, it must be disposed of at a registered hazardous disposal site and kept on site at all times.
- All solid waste must be collected and placed in bins.

13.9 Water contamination and pollution measures

- Sediment and Erosion Control: Implement erosion and sediment control measures such as silt fences, sediment basins, and erosion control blankets to prevent soil erosion and sedimentation into nearby water bodies.
- Stormwater Management: Design and implement stormwater management systems to capture, detain, and treat stormwater runoff from construction sites before it enters water bodies. This can include the use of retention ponds, bioswales, and permeable surfaces.
- Proper Waste Management: Establish procedures for the proper disposal and management of construction waste, including hazardous materials such as paints, solvents, and chemicals. Ensure that waste is stored, handled, and disposed of according to regulations to prevent leaching into groundwater or surface water.
- Spill Prevention and Response: Develop spill prevention plans and train construction workers on spill response procedures to quickly contain and clean up any spills of hazardous materials that could contaminate water sources.
- Construction Best Practices: Implement construction best practices such as minimizing disturbed areas, phasing construction activities to reduce exposed soil, and using drip pans or secondary containment for equipment and materials to prevent leaks and spills.

13.10 Geotechnical conditions

➤ Potential Impact Recommended Mitigation

Seepage /groundwater - Subsurface drainage / improved damp-proofing measures to houses, service trenches to be dewatered during construction

Erodibility of soil- Retaining walls & earthworks to reduce slopes & surface

Drainage

13.11 The impact management outcomes for this development

- To reduce the adverse impacts and enhance the benefits of the development.
- Preserve faunal and floral species and their associated habitats within identified sensitive areas and outside of the development footprint
- To reduce the adverse impacts on avifaunal species due to the construction of the overhead line.
- Preserve Species of Conservation Concern (SCC) within the development footprint.
- Maintain soil and vegetation cover, through the implementation of erosion control, stormwater management, and alien vegetation management measures.

- Undertake activities in a manner which does not place workers or the public at risk in terms of health and safety.
- Prevent, and where not possible, control fires to protect public health, the environment and any properties in the vicinity of the development.
- Reduce the potential for pollution, in terms of air pollution, land pollution, water pollution, and noise pollution.
- Rehabilitate disturbed areas to their natural state or a near-natural state.
- Manage and maintain the operational development to reduce adverse impacts associated with the operation of the development and to ensure sustainable development

SECTION 14

14. Recommendation on Authorization of Proposed Activity

Following the detail assessment, particularly the input from the specialists, it is recommended that the development as proposed, is authorised with the mitigation measures to comprise the conditions of approval. It is proposed that the authorisation is given for 10 years.

SECTION 15

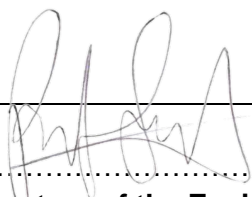
15. Declaration By the EAP

I,.....Pravin Amar Singh....., declare that –

- I act as the independent environmental assessment practitioner in this application;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I will take into account, to the extent possible, the matters listed in Regulation 13 of the Regulations when preparing the application and any report relating to the application;
- I undertake to disclose to the applicant and the Competent Authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the Competent Authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the Competent Authority, unless access to that information is protected by law, in which case it will be indicated that such information exists and will be provided to the Competent Authority;
- I will perform all obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- I am aware of what constitutes an offence in terms of Regulation 48 and that a person convicted of an offence in terms of Regulation 48(1) is liable to the penalties as contemplated in Section 49B of the Act.

Disclosure of Vested Interest (delete whichever is not applicable)

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Regulations;
- ~~• I have a vested interest in the proposed activity proceeding, such vested interest being:~~



.....
Signature of the Environmental Assessment Practitioner

Accra Group

.....
Name of Company:

28 August 2024

.....
Date: