PROJECT OWNER	PROJECT DESCRIPTION:	PROJECT SPONSOR
	PSP TO SUPPORT MSUKALIGWA LOCAL MUNICIPALITY WITH THE FEASIBILITY STUDY AND TOWNSHIP ESTABLISHMENT ON THE REMAINDER OF PORTION 44 OF THE FARM SPITSKOP 276-IS.	

DRAFT ENVIRONMENTAL IMPACT REPORT

The proposed township establishment on the remainder of Portion 44 of the Farm Spitskop 276 IS in Ermelo within the Msukaligwa Local Municipality, Gert Sibande District Municipality, Mpumalanga Province

REFERENCE NUMBER: MPP/EIA/0001124/2022

Date: March

2023

PROFESSIONAL SERVICE PROVIDER		TECHNICAL EXPERT
MINTIRHO MANAGEMENT CONSULTANTS	**Contacts Person:** Tokollo Kobe **Contact No.:**0732845142 **Email Address:** tokollok@mveledzoenviro.co.za **Professional Status & Registration No.:** Registered EAP 2021/3499	MVELEDZO ENVIRONMENTAL AND SAFETY SOLUTIONS PTY(LTD)

Project Title	Draft Environmental Impact Report – Ermelo Township Establishment
Report Title	Draft Environmental Impact Report for the proposed township establishment on the remainder of Portion 44 of the Farm Spitskop 276 IS in Ermelo within the Msukaligwa Local Municipality, Gert Sibande District Municipality, Mpumalanga Province.
Report reference	MLM01-2022
Date	23/03/2023

Record of Revision and Amendments

Date	Revision No.

Quality Control

Prepared By	Designation	Signature	Date
Tokollo Kobe	Environmental Assessment Practitioner (EAPASA Reg: 2021/3922)		15/03/2023
Reviewed and approved by	**Designation**	**Signature**	**Date**
Takalani Mudau	Senior Environmental Assessment Practitioner (EAPASA Reg: 2019/1859)		20/03/2023
Issued By	**Designation**	**Signature**	**Date**
Tokollo Kobe	Environmental Assessment Practitioner (EAPASA Reg: 2021/3922)		23/03/2023

EXECUTIVE SUMMARY

Mveledzo Environmental and safety Solutions as an independent environmental consultancy has been appointed by Development Bank of South Africa (DBSA) on behalf of Msukaligwa Local Municipality to undertake the required Environmental Impact Assessment (EIA) process for the proposed township establishment with associated infrastructures, as required by the NEMA EIA Regulations, 2014 (amended on 7 April 2017).

Msukaligwa Local Municipality (MLM) would like to establish a township. This project entails formalization of approximately +/- 1 000 stands and other required community facilities within approximately 198 hectares of land. Part of the site is being used as an illegal dumping site. There is Mpumalanga Highveld wetland on site. The site is currently being used as grazing ground by cattle. A golf course and mine can be observed on the boundary of the site. Bulk sewage servitude was also noticed on site.

The proposed project will trigger listed activities (detailed in the table below) in terms of the Environmental Impact Assessment (EIA) Regulations as promulgated under the National Environmental Management Act (No. 107 of 1998) (NEMA). Therefore, the proposed development requires Environmental Authorisation in terms of the EIA Regulations prior to commencement of construction and operation phases.

Table 1: Listed activities

Activity	Description	Applicability
Activity No 15, Listing notice 2 (GNR 325)	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding 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 site requires clearance of approximately 198 hectares of land for the purpose of the township establishment.

Activity No 23, Listing notice 1 (GNR 327)	The development of cemeteries of 2 500 square metres or more in size.	A cemetery of approximately 10 hectares will be establishment as part of the project.

This Draft Environmental Impact Report (EIR) provides an assessment of both the positive and potential negative impacts anticipated as a result of the proposed establishment, construction and operations of the township. Having duly considered the nature of the project, in the opinion of the Environmental Assessment Practitioner (EAP), the project does not pose a detrimental impact on the receiving environment and its inhabitants. The impacts that have been identified and addressed through the impact assessment can be mitigated significantly with the use of an Environmental Management Programme (EMP). The applicant should be bound to stringent conditions to maintain compliance and responsible executions of the project

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TERMS	DEFINITIONS
Alternatives	Alternatives are different means of meeting the general purpose and need of a proposed activity. Alternatives may include location or site alternatives, activity alternatives, process or technology alternatives, temporal alternatives or the 'do nothing' alternative
Ambient sound level	The reading on an integrating impulse sound level meter taken at a measuring point in the absence of any alleged disturbing noise at the end of a total period of at least 10 minutes after such meter was put into operation.
Archaeological material	Remains resulting from human activities which are in a state of disuse and are in or on land and which are older than 60 years, including artefacts, human and hominoid remains, and artificial features and structures.
Cumulative impacts	The impact of an activity that in itself may not be significant, but may become significant when added to existing and reasonably foreseeable impacts eventuating from similar or diverse activities or undertakings in the area.
Development:	The building, erection, construction or establishment of a facility, structure or infrastructure, including associated earthworks or borrow pits, that is necessary for the undertaking of a listed or specified activity, but excludes any modification, alteration or expansion of such a facility, structure or infrastructure, including associated earthworks or borrow pits, and excluding the redevelopment of the same facility in the same location, with the same capacity and footprint
Development footprint:	any evidence of physical alteration as a result of the undertaking of any activity
Direct impacts	Impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity (e.g. noise generated by blasting operations on the site of the activity). These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable
No go' alternative	The 'do nothing' alternative is the option of not undertaking the proposed activity or any of its alternatives. The 'do nothing' alternative also provides the baseline against which the impacts of other alternatives should be compared.

Emergency plan	An emergency plan is a plan in writing that, on the basis of identified potential incidents at the installation together with their consequences, describes how such incidents and their consequences should be dealt with, both on site and off site.
Environment	Our surroundings, including living and non-living elements, e.g. land, soil, plants, animals, air, water and humans. The environment also refers to our built, social and economic surroundings, and our effect on our surroundings
Environmental Impact	A description of the potential effect or consequence of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space
Environmental Impact Assessment	Environmental Impact Assessment (EIA), as defined in the NEMA EIA Regulations and in relation to an application to which S&EIR must be applied, means the process of collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of that application
Environmental management:	Ensuring that environmental concerns are included in all stages of development, so that development is sustainable and does not exceed the carrying capacity of the environment.
General Waste	defined in the NEM: Waste Amendment Act, 2014 (Act No. 26 of 2014) Waste that does not pose an immediate hazard or threat to health or to the environment, and includes: a) Domestic waste; b) Building and demolition waste; c) Business waste; d) Inert waste; or e) Any waste classified as non-hazardous waste in terms of the regulations made under section 69, and includes non-hazardous substances, materials or objects within the business, domestic, inert or building and demolition wastes.
Groundwater	Water found underground, typically supplying wells, boreholes and springs
Hazardous waste	defined in the NEM: Waste Amendment Act, 2014 (Act No. 26 of 2014) Any waste that contains organic or inorganic elements or compounds that may, owing to the

	inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment and includes hazardous substances, materials or objects within the business waste, residue deposits and residue stockpiles.
Interested and Affected Party	Individuals or groups concerned with or affected by an activity and its consequences. These include the authorities, local communities, investors, work force, consumers, environmental interest groups and the general public.
Land degradation	Reduction in capacity of the soil or vegetation to support life, through the damage to physical, chemical or biological properties, contributing to an unsustainable ecological system.
Mitigation measures	Measures designed to avoid, reduce or remedy adverse impacts.
Waste management	A control system to limit, collect and dispose of waste in an efficient and environmentally friendly way through clear policies and environmental standards, e.g. reducing plastic packets

Abbreviations

EIR -	Environmental Impact Report
EMPr -	Environmental Management Programme Report
GDP -	Gross Domestic Product
GVA -	Gross Value Added
HIA-	Heritage Impact Assessment
IHS -	Indian Health Service
MLM	Msukaligwa Local Municipality
NEMA-	National Environmental Management Act
NEM:BA-	National Environmental Management: Biodiversity Act
NEMAQA -	National Environmental Management: Air Quality Act
NEMWA-	National Environmental Management: Waste Act
NFEPA -	National Freshwater Ecosystem Priority Areas
NGOs -	Non-Government Organizations
NHRA -	National Heritage Resources Act
NWA-	National Water Act, Act 36 of 1998
MPHRA	Mpumalanga Provincial Heritage Resources Authority
PPP -	Public Participation Process
SAHRA -	South African Heritage Resource Agency
SANBI -	South African National Botanical Institute
SR -	Scoping Report
TIA -	Traffic Impact Assessment

GENERAL DETAILS

This section provides details of Applicant and Environmental Assessment Practitioner who prepared the report as well the expertise of the Environmental Assessment Practitioner who carried out the Environmental Impact Report (EIR).

Detail of the Applicant

Table 2: Details of the Applicant

Applicant	Msukaligwa Local Municipality (Pty) Ltd
Representative:	Hilda Maganya
Postal Address:	PO Box 48, Ermelo, 2350
Postal Code:	2350
Telephone:	017 801 3485/ 066 329 1113
E-Mail:	hmaganya@msukaligwa.gov.za/ hmapule@gmail.com

Details of the Environmental Consultancy.

Mveledzo Environmental and safety Solutions (Pty) Ltd was appointed by DBSA on behalf of the Msukaligwa Local Municipality (MLM) as an independent environmental consultant to undertake the Environmental Impact Assessment Report for the proposed township establishment and associated infrastructure in Ermelo. Mveledzo are not subsidiaries of / or affiliated to MLM. Furthermore, Mveledzo does not have any interests in secondary developments that may arise out of the of the project other than being remunerated for the services provided.

The Mveledzo staff has acquired considerable experience in environmental management over the past years and has been actively involved in undertaking environmental studies for a wide variety of projects throughout South Africa. Strong competencies have been developed in project management as well as strategic environmental assessment and compliance advisory, and the identification of environmental management solutions and mitigation/risk minimising measures.

Table 3: Details of Environmental Assessment Practitioner.

Environmental Assessment Practitioner:	**Mveledzo Environmental and Safety Solutions (Pty) Ltd**
Contact person:	Tokollo Kobe
Physical Address:	136 2nd Street, Randjespark, Midrand
Postal code:	1685
Cell phone:	073 284 5142
E-mail:	tokollok@mveledzoenviro.co.za
EAP Qualifications:	BSc. Hons (Environmental Sciences)
Professional Affiliation	EAPASA registered: Reg 2021/3499

Expertise to conduct the Environmental Impact Report.

Ms Tokollo Kobe holds a Bachelor of Environmental Sciences Honours in Geography from the University of Venda. She is an Environmental Consultant at Mveledzo Environmental and safety Solutions. She has 5 years of experience as an Environmental Consultant.

She has a vast understanding of the National Environmental Management Act (Act 107 of 1998) Occupational Health and Safety Act (Act No. 85 of 1993) and other associated legislations. Up to date, Tokollo has experience in conducting Environmental Impact Assessments (EIA), Waste Management Plans, Environmental Auditing, stakeholders' engagements and has been involved in over 30 projects ranging from housing, mining, agricultural EIA etc.

1. PROJECT INTRODUCTION

1.1 Project Description

Mveledzo Environmental and Safety Solutions as an independent environmental consultancy, has been appointed by Development Bank of South Africa (DBSA) on behalf of the Msukaligwa Local Municipality to undertake the required Environmental Impact Assessment (EIA) process for the proposed township establishment with associated infrastructures, as required by the NEMA EIA Regulations, 2014 (amended on 7 April 2017).

Msukaligwa Local Municipality (MLM) would like convert and agricultural holdings to a township. This project entails formalization of approximately +/- 1100 stands and other required community facilities within approximately 198 hectares of land.

The development will include the development of the following community facilities and businesses.

- 1103 residential units
- 6 public open spaces
- 4 business stands
- 2 church stands
- 1 clinic
- 1 community hall
- 3 crèche facilities
- 1 cemetery
- 1 primary School
- 1 road

The proposed activity includes the installation of the following services

- Sewage lines

The External Sewerage System needs augmentation on two fronts; the pipeline (outfall/rising mains) must be developed to accommodate the Remainder of the Portion of the Spitskop 276-IS. Only 1,000 m of an approximate 7,000 m total length of disposal pipeline has been built. This comprises of two outfalls, a pump station and a short rising main.

- Roads

The N11 acts as an access route to the site, therefore no extensive work is required further.

- Storm water drainage

Currently the site has no stormwater infrastructure, such as required will be developed within the scope of the proposed development.

- Bulk Water services

The existing external water supply for this site are currently strained. Augmentation 19 Ml/d, current Summer Peaks. Storage in the site are must also be augmented by a minimum of 2 Ml only for this development.

- Solid waste collection.

Ermelo Landfill Site in the site's proximity is adequately developed to accommodate the proposed development.

1.2 Site Location

The proposed township establishment site is located in Ermelo area within the Gert Sibande District Municipality. 3 km north west of Ermelo Central Business District (CBD). Boundaries of the site are located within a few meters from the N11. The central co-ordinates to the site are: - 26°28'41.07"S, 29°57'59.56"E

Table 4:Location details

Province	Mpumalanga	
District	Gert Sibande District Municipality	
Municipality	Msukaligwa Local Municipality	
Nearest town(s)	Ermelo	
Farm name(s) and number(s)	Remainder of Portion 44 of Farm Spitskop 276 IS	
SG 21 Digit Code	T0IS00000000027600044	
Co-ordinates	26°28'41.07"S	29°57'59.56" E

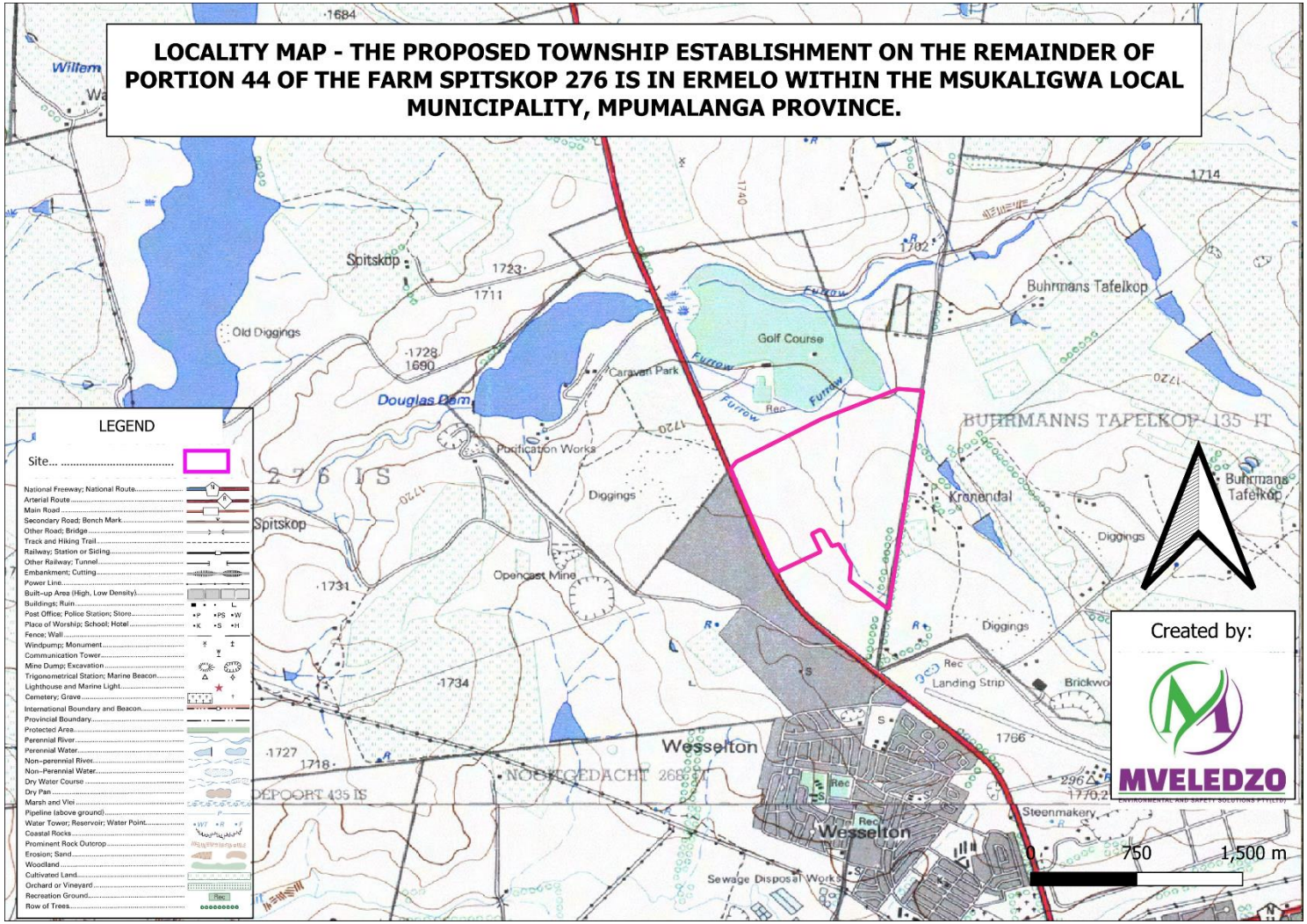

Figure 1: Locality map of the proposed development site

Locality map has been attached as **Appendix A1.**

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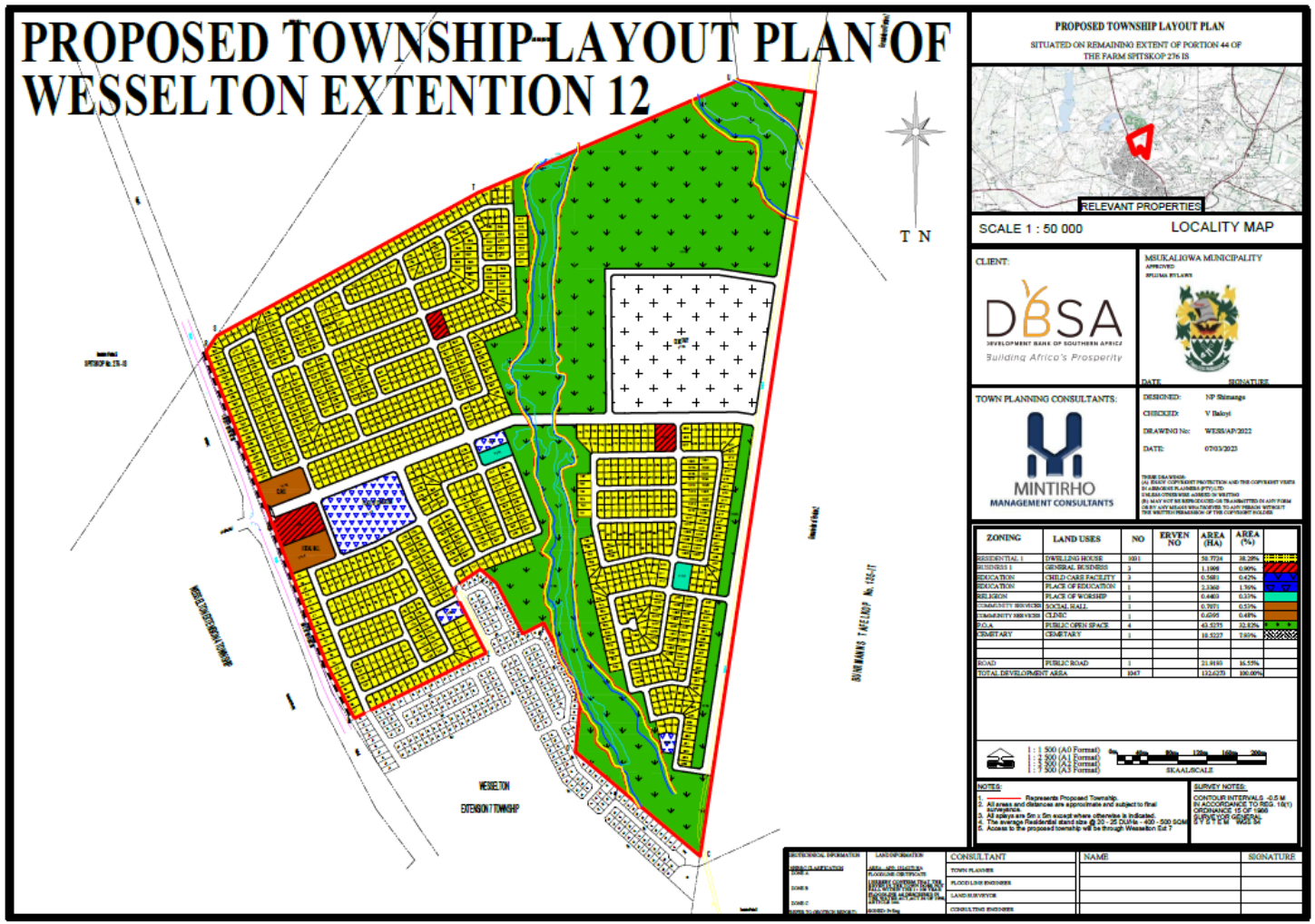

Figure 2: Site layout plan.

Site layout plan has been attached as **Appendix B**.

2. REGULATORY AND LEGAL CONTEXT

2.1 All Relevant Listed Activities Triggered

Table 5:Listed activities triggered

Activity	Description	Applicability
Activity No 15, Listing notice 2 (GNR 325)	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding 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 site requires clearance of approximately 198 hectares of land for the purpose of the township establishment.
Activity No 23, Listing notice 1 (GNR 327)	The development of cemeteries of 2 500 square metres or more in size.	A cemetery of approximately 10 hectares will be establishment as part of the project.

2.2 Legislation and Guidelines that have informed the preparation of this Environmental Impact Report (EIR).

Several other Acts, standards or guidelines have also informed the project process and the scope of issues evaluated in the Environmental Impact report, and to be addressed in the EIA. A listing of relevant legislation is provided in the table below. A more detailed review of legislative requirements applicable to the proposed project will be included in the EIA phase.

Table 6: Relevant legislation applicable to the proposed township establishment project.

Title of legislation, policy or guideline (Promulgation Date)	Applicable Requirements	Administering Authority	Description of compliance
National Legislations/ Policies/ Plans			
The Constitution of the Republic of South Africa (Act 108 of 1996)	The mandate and directives for sustainable and participative local government are embodied in the 1996 Constitution of the Republic of South Africa, Chapter 2 Section 24 of the constitution of the states that everyone has the right: ▪ To an environment that is not harmful to their health or well-being, ▪ To have the environment protected, through reasonable legislative and other that; o Prevent pollution and degradation, o Promote conservation; and o Secure ecologically sustainable development and the use of natural resources while	Department of Justice and Constitutional Development	The proposed project has to ensure protection of sensitive environmental features and sustainable use of environmental resources. Degradation and pollution should be prevented or at least mitigated where prevention is impossible. The project will ensure reliable social and economic benefits as people will be employed and some will purchase secure low-income residential houses.

	promoting justifiable economic and social development		
National Environmental Management Act (Act No. 107 of 1998)	▪ NEMA requires, inter alia, that: o Development must be socially, environmentally, and economically sustainable." o Disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimized and remedied." o A risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions." ▪ EIA Regulations have been promulgated in terms of Chapter 5. Activities which may not commence without an environmental authorization are identified within these Regulations. In terms of S24(1) of NEMA, the potential impact on the environment associated with these listed activities must be considered, investigated, assessed and reported on to the competent authority charged by NEMA with granting of the relevant environmental authorization.	▪ Department of Environmental Affairs	The proposed project takes into consideration the NEMA Act (act no.107 of 1998). This will ensure that ecosystem disturbances are considered and mitigated throughout the project. In order for the project to commence, authorisation from the competent authority will be required.

National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	▪ The National Environmental Management Waste Act (NEM: WA). Act No 59 of 2008 in fulfilment of the rights contained in section 24 of the Constitution, which states that everyone have a right to an environment that is not harmful to health and well-being, contemplates that no person may commence with the activities listed in NEM: WA without obtaining a Waste Management License in terms of Waste Management Activity. ▪ This act seeks to reduce the amount of waste that is generated and where waste is generated, to ensure that waste is reused, recycled or recovered in an environmentally sound manner before being safely treated and disposed thereof.	Department of Environmental Affairs	Waste will be generated throughout the construction phase and operational phase. Organic waste will also be produced during the clearing of the vegetation. This act will assist in regulating compliance with regards to waste management on site.
National Environmental Management: Air Quality Act (Act No. 39 of 2004)	▪ In terms of the list of minimum emissions standards published in terms of Section 21 of the NEM: AQA, there are certain activities with related air quality impacts which need to be licensed prior to commencement. ▪ Section 38 of the NEM: AQA stipulates the requirements for an application for an Atmospheric Emissions License (AEL) ▪ These include the completion of the application form published by the air quality authority, as well as public participation.	Department of Environmental Affairs	Proposed project will require dust suppression measures when necessary i.e. dust suppression on gravel roads and throughout the construction phase.

	▪ The act protects the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while providing justifiable economic and social development ▪ The act also provides for national, provincial and local air quality standard. ▪ Dust control regulations promulgated in November 2013 may require the implementation of a dust management plan.		
National Water Act (Act No. 36 of 1998)	▪ The National Water Act (NWA) guides the management of water and water resources in South Africa as a common resource. ▪ Under S21 of the Act, water uses must be licensed unless such water use falls into one of the categories listed in S22 of the Act or falls under the general authorization. ▪ In terms of S19, the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to prevent and remedy the effects of pollution to water resources from occurring, continuing, or recurring	Department of Water Sanitation	Water boreholes and possible storage of water should be licenced in line with the Act if they will be required on site.

National Heritage Resources Act (Act No. 25 of 1999)	▪ Section 38 states that Heritage Impact Assessments (HIAs) are required for certain kinds of development including: ○ Any development or other activity which will change the character of a site exceeding 5 000 m^2 in extent ▪ The relevant Heritage Authority must be notified of developments such as linear developments (i.e. roads and power lines), bridges exceeding 50 m, or any development or other activity which will change the character of a site exceeding 5 000 m^2; or the re-zoning of a site exceeding 10 000 m^2 in extent. This notification must be provided in the early stages of initiating that development, and details regarding the location, nature and extent of the proposed development must be provided. Stand-alone HIAs are not required where an EIA is carried out as long as the EIA contains an adequate HIA component that fulfils the provisions of S38. In such cases only those components not addressed by the EIA should be covered by the heritage component.	▪ South African Heritage Resource Agency.	Should there be any Heritage features on site SAHRA and / or Mpumalanga Provincial Heritage Resources Authority (MPHRA) must be informed
National Road Traffic Act, 1996 (Act No. 93 of 1996)	Guidance in road safety procedures and laws. Also shows the applicable fine for certain actions were roads laws are broken.	Department of Roads and Transport	Road safety need to be adhered to as the development of the project may lead to traffic jam as vehicles move in and out of the facility

National Environmental Management: Biodiversity Act (No 10 of 2004)	The objectives of the National Environmental Management: Biodiversity Act (NEM:BA) inter alia include the following: ▪ Management and conservation of biological diversity; ▪ Use of biological resources in a sustainable manner; ▪ Equitable sharing of benefits arising from bio prospecting; and ▪ Cooperative governance in biodiversity management and conservation. The Biodiversity Act requires that in order to fulfil the rights contained in Section 24 of the Constitution, the State through its organs that implement legislation applicable to biodiversity, must manage, conserve and sustain South Africa's biodiversity and its components; and must implement the Act to achieve the progressive realisation of those rights. The Act does not directly impose any obligations on municipalities because the Act will be implemented mainly via a National Biodiversity Strategy and Action Plan (NBSAP) and National Biodiversity Framework (NBF).	Department of Environmental Affairs	The removal of indigenous vegetation disrupts habitats and ecosystems which result in negative impacts of biodiversity as a whole; therefore, conditions of this act should be adhered to.
National Forests Act (No 84 of 1998), as amended by the Forestry Laws	According to the National Forest Act (NFA; Act No. 122 of 1984), the Minister may declare a tree, group of trees, woodland or a species of trees as protected. The prohibitions provide that:	Department of Agriculture Forestry and Fisheries	No protected trees (if they will be identified on site) will be cut, damaged or disturbed without a licence.

Amendment Act (No 35 of 2005)	• no person may cut, damage, disturb, destroy or remove any protected tree, or collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a licence granted by the Minister'. In essence the National Forests Act (NFA) prohibits the destruction of indigenous trees in any natural forest without a licence.		
Occupational Health and Safety Act (No 85 of 1993)	The Occupational Health and Safety Act (OHSA; Act 85 of 1993) provides for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work, against hazards to health and safety arising out of or in connection with the activities of persons at work.	Department of Labour.	As there will be people employed on site, it is important that they are provided with personal protective equipment and the safe use of machinery should be practiced throughout the lifecycle of the project.
Promotion of Access to Information Act, 2000 (Act No 2 of 2000):	▪ The act gives effect to constitutional right to access of information held by the state and any information that is held by another person and that is required for the exercise or protection of any rights; and to provide for matters connected therewith. ▪ Legislation that allows the public access to information about activities that influence their well-being and to make contributions to decision making.	Department of Justice and Constitutional Development	The act applies during the public participation process phase of the project.

Hazardous Substances Act 1973 (Act No.15 of 1973)	Hazardous Substances Act No. 15 of 1973 gives provision for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxicity, strong sensitizing or flammable nature and the generation of pressure thereby in certain circumstances. It further provides for the division of such substances or products into groups in relation to the degree of danger; to provide for the prohibition and control of the importation sale, use, operation, application, modification, disposal or dumping of such substances and products; and to provide for matters connected therewith.	Department of Labour.	The act should be adhered to during handling, treatment and disposal of hazardous materials.
National Environmental Management: Protected Areas Act, (Act No. 57 of 2003)	The National Environmental Management: Protected Areas Act (NEM: PAA) provides for protection and conservation of South Africa's biodiversity within a system of protected areas. The Act provides a legislative framework for the declaration, management, monitoring and supervision of areas protected for conservation purposes, as well as restrictions applicable to protected areas. Linked to the NEM: PAA is the National Protected Area Expansion Strategy (NPAES), which was adopted in 2009. This strategy sets targets for protected area expansion, provides maps of the most important areas for protected area expansion, and makes recommendations on mechanisms for protected area expansion. The following are NEM: PAA's provisions that are relevant in roles and responsibilities by the local government:	Department of Agriculture Forestry and Fisheries	Since there will be clearance of land, it is important to investigate whether there are any areas of significance on the site and therefore the applicable acts should be followed.

	▪ By-laws: existing and future by-laws should be consistent with the Act or any Notice/regulation issued in terms of the Act ▪ Protected area managed by a municipality will continue to be regulated by provincial legislation ▪ Municipalities will have to develop and manage local protected areas according to Norms and Standards determined by the Minister – and report to the Minister on indicators of compliance with these ▪ Municipalities may have areas under their jurisdiction declared as: special nature reserves, national parks, nature reserves, wilderness areas, protected environments. Before the Minister or an MEC declares such an area he/she must first consult with the municipality (and community – if the land is held in trust on behalf of a community) in which it is situated. ▪ Minister or MEC may assign responsibility for management of such an area to the municipality (which is then known as the 'management authority' for the area). This assignment can only be carried out with agreement from the municipality.		

	▪ Responsibilities of a 'management authority' include drafting of management plan for the area.		
National Veld and Forest Fire Act, 1998 (Act No. 101 of 1998)	The Act aims to prevent and combat veld, forest and mountain fires throughout the Republic and provides for a variety of institutions, methods and practices for achieving the purpose. ▪ Every owner on whose land a veldfire may start or burn or from whose land it may spread must prepare and maintain a firebreak on his or her side of the boundary between his or her land and any adjoining land. The firebreak must be prepared and maintained according to Section 13 of this Act. ▪ Every owner on whose land a veldfire may start or burn or from whose land it may spread must— (a) have such equipment, protective clothing and trained personnel for extinguishing fires ▪ Any owner who has reason to believe that a fire on his or her land or the land of an adjoining owner may endanger life, property or the environment, must immediately— (a) take all reasonable steps as per this Act.	Department of Agriculture Forestry and Fisheries	Due to the nature of the proposed activity, the proponent should ensure that this act is adhered to.

Spatial Planning and Land Use Management Act (Act 16 of 2013)	The aim of this act is to provide a framework for spatial planning and land use management in the republic, to specify relationship between the spatial and the land use management system and other kinds of planning; to provide for the inclusive developmental, equitable and efficient spatial planning at different spheres of the government, to provide for the establishment, functions and operations of Municipal tribunals etc.	Office of the presidency.	This serves as the major legislation for spatial planning and land use management that must be adhered to.
Provincial Acts / Regulations / Policies/ Plans / Programmes / Norms and Standards			
Msukaligwa Local Municipality IDP (Amended 2020-2021)	The 2020/2021 Integrated Development Plan is a reviewed version of the 2017/2018 to 2021/2022 IDP document (5 year IDP) adopted by the Municipal Council as per council resolution LM 77/05/2017dated 30th May 2017. The 2020/2021 IDP is continuing to direct the planning and implementation process of key programmes and service delivery projects of the municipality and ensuring focus on improving socio-economic situations, strengthening our local economic development, meeting the millennium targets, improving service delivery mechanisms, strengthening and improving inter-governmental relations and community participation as well as the implementation of the National Development Plan (Vision 2030) is still sustained.	Msukaligwa Local Municipality	The development aligns to the IDP in terms of planning.

Msukaligwa Local Municipality Waste Water By-Law	Sanitation services provided by the authority or the authorised provider, will comply with the minimum standards set for the provision of sanitation services in terms of section 9 of the Act.	Msukaligwa Local Municipality	The development needs to follow this by-law in terms of sanitation.
Msukaligwa Local Municipality Electricity By-Law	No person shall use or be entitled to use any electricity supply from the Service Provider unless or until such person shall have entered into an agreement in writing with the Service Provider for such supply and such agreement together with the provisions of this by-law shall in all respects govern such supply. (1) The charge payable for the supply shall be in accordance with the prescribed tariff. (2) The Municipality may decide whether a consumer's agreement shall be concluded by it with the owner or with the occupier of the premises or some person acting on his/her behalf. (3) No person shall, without first having obtained the engineer's permission in writing, lead electricity temporarily or permanently to any point of consumption or place not forming part of the electrical installation for which a supply has been agreed upon or given.	Msukaligwa Local Municipality	The development must be governed by this by-law in terms of electricity supply and installations.

Msukaligwa Local Municipality Traffic By-Law	Subject to the provisions of this section, any word or expression used in these by-laws to which a meaning has been assigned in the Road Traffic Act shall bear that meaning unless the context indicates otherwise.	Msukaligwa Local Municipality	The development must be governed by this by-law in terms of Traffic control.

3. DESCRIPTION OF THE RECEIVING ENVIRONMENT

3.1 Biophysical aspects

3.2.1 Climate

In Ermelo, the climate is warm and temperate. During the summer season, there is more rainfall as compared to the winter season. The Köppen-Geiger climate classification in this region is Cwb. In Ermelo, the average annual temperature is 14.7 °C (Refer to table 7). In a year, the rainfall average is 883 mm. Summer starts in December and end in March.

The month with the highest relative humidity is January (76.71 %) while the month with the lowest relative humidity is August (42.93 %). The month with the highest number of rainy days is December (17.73 days) with July having the lowest number of rainy days (1.03 days).

The driest month is June. Most of the precipitation here falls in December, averaging 172 mm. The precipitation varies 165 mm between the driest month and the wettest month. Throughout the year, temperatures vary by 9.0 °C.

Table 7: Average climatic data

	January	February	March	April	May	June	July	August	September	October	November	December
Avg. Temperature °C (°F)	17.9 °C (64.3) °F	17.9 °C (64.3) °F	16.9 °C (62.4) °F	14.4 °C (58) °F	11.8 °C (53.2) °F	9.2 °C (48.6) °F	9 °C (48.2) °F	12.1 °C (53.7) °F	15.3 °C (59.5) °F	16.4 °C (61.6) °F	17 °C (62.5) °F	17.9 °C (64.3) °F
Min. Temperature °C (°F)	13.6 °C (56.5) °F	13.6 °C (56.4) °F	12.3 °C (54.2) °F	9.6 °C (49.3) °F	6.1 °C (43) °F	3.3 °C (37.9) °F	2.7 °C (36.8) °F	5.5 °C (41.8) °F	8.3 °C (47) °F	10.4 °C (50.7) °F	11.7 °C (53.1) °F	13.3 °C (55.9) °F
Max. Temperature °C (°F)	23.2 °C (73.7) °F	23.3 °C (73.9) °F	22.4 °C (72.4) °F	20.2 °C (68.4) °F	18.5 °C (65.3) °F	16.4 °C (61.5) °F	16.5 °C (61.6) °F	19.8 °C (67.6) °F	23.2 °C (73.7) °F	23.6 °C (74.4) °F	23 °C (73.3) °F	23.5 °C (74.2) °F
Precipitation / Rainfall mm (in)	149 (5)	108 (4)	97 (3)	49 (1)	16 (0)	7 (0)	7 (0)	16 (0)	28 (1)	101 (3)	133 (5)	172 (6)
Humidity(%)	77%	75%	72%	68%	58%	53%	48%	43%	43%	57%	68%	73%
Rainy days (d)	13	10	9	6	2	1	1	2	4	9	12	13
avg. Sun hours (hours)	7.3	7.4	7.3	7.4	8.3	8.3	8.4	8.9	9.1	8.6	8.1	8.1

3.2.2 Topography

The topography of the study region is moderately undulating grassland plains, with occasional low hills and pan depressions. The altitude (elevation) of the region is high and tends to vary mostly between 1748 - 1701 m (Figure 3).

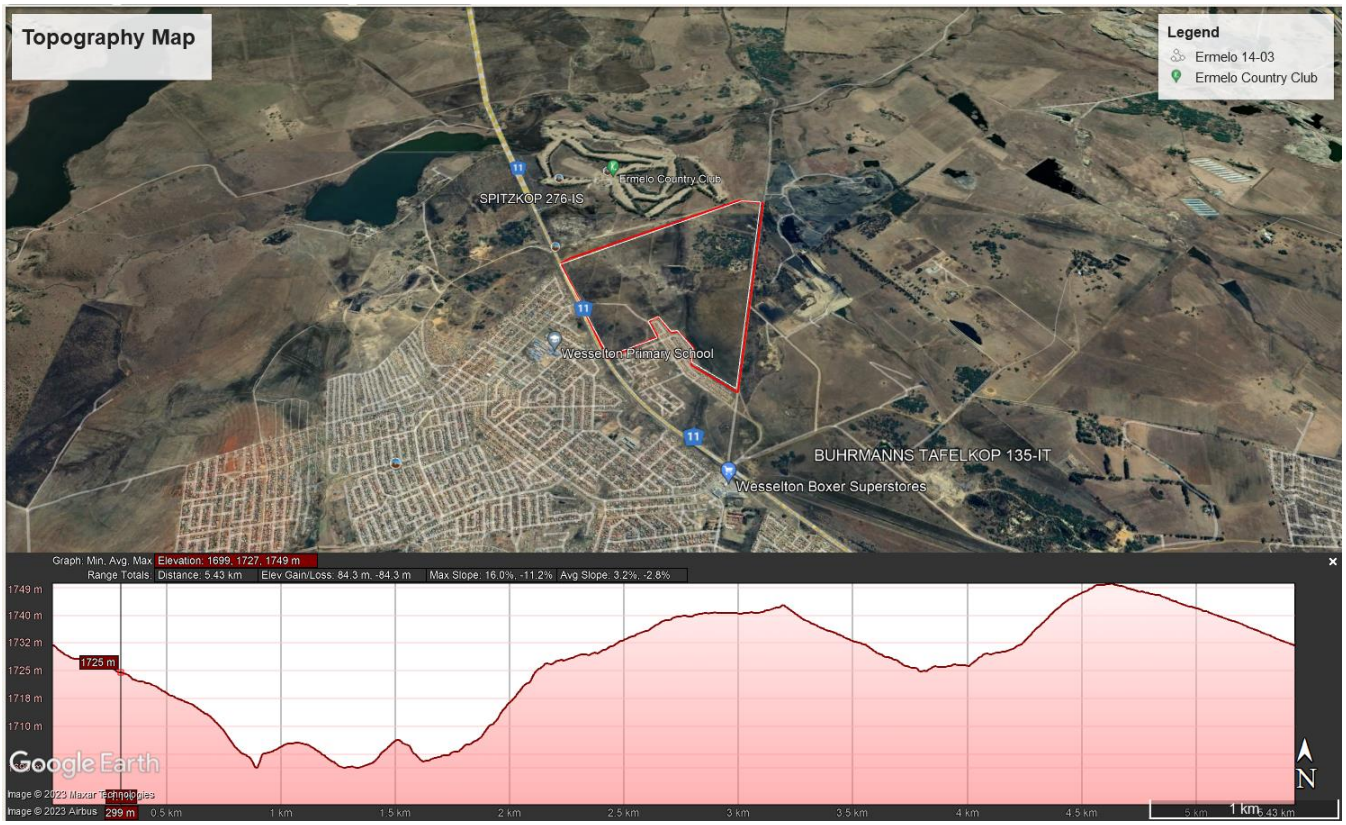

Figure 3: Topography man (Attached as Appendix A4)

3.2.3 Geology and Soils

The site is underlain by sandstone, shale and siltstone with coal beds at the bottom of the sedimentary succession of the Vryheid Formation belonging to the Karoo Sequence. Dolerite in the form of dykes and sills has intruded into the host rock along planes of weakness and are often encountered within the sedimentary succession. The site is covered with recent deposits in the form of silty and sandy colluvium and/or gully wash. Ferricrete, classed as pedogenic material, was encountered as abundant concretions and cobbles within the site soils or as a fairly well developed layer at the base of the colluvium or gully wash.

The soils of this Eastern Highveld Grassland consist of yellow sandy soils of the Ba (30%) and Bb (65%) land types found on shale and sandstone of the Karroo Supergroup

3.2.4 Flora

According to the Mpumalanga Conservation Planning Sector. The Vegetation of the site is comprised of the Eastern Highlands Grassland (Figure 4). The Eastern Highveld Grassland is recorded on the plains of Belfast in the east and the eastern side of Johannesburg in the west, extending southwards to Bethal, Ermelo and west of Piet Retief within the Mpumalanga and Gauteng Provinces (Mucina & Rutherford; 2006).

The Eastern Highveld Grassland is found on slightly to moderately undulating plains, including some low hills and pan depressions and consist of short, dense grassland, dominated by the usual Highveld grass composition (Aristida, Digitaria, Eragrostis, Themeda, Tristachya, etc.) with small, scattered rocky outcrops with wiry, sour grasses and some woody species (Mucina & Rutherford; 2006). Woody species include Acacia caffra, Celtis africana, Diospyros lycioides subsp. lycioides, Parinari capensis, Protea caffra and Rhus magalismontana.

The Eastern Highveld grassland is classified as an endangered vegetation type (Rouget et al., 2004; Mucina & Rutherford, 2012, Ferrar & Lötter, 2007) due to mining activities within the province.

Figure 4: Vegetation map (Attached as Appendix A5)

As shown on Figure 5 below, the larger part of the site is located within an area classified as heavily modified and other naturals. The site has been modified due to human activities and livestock grazing. Some parts of the site are being used for illegal dumping. The Eastern Highveld Grassland is considered threatened due to mining activities in the province.

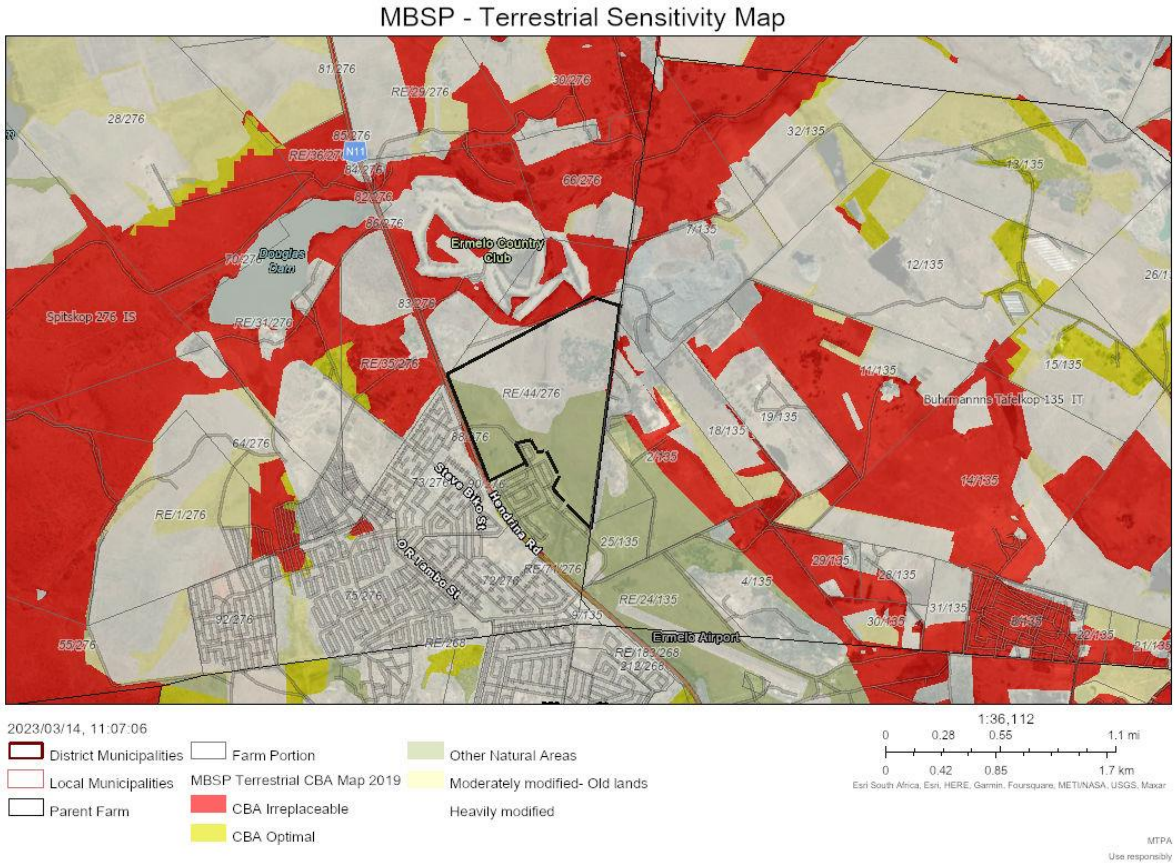

Figure 5: Terrestrial sensitivity Map (Attached as Appendix A3)

3.2.5 Fauna

There was no evidence of any fauna on the site as well as no observation of fauna during the site visit with the exception of a few birds. There were cattle grazing during the site visit. The surrounding area is also fairly disturbed as some areas near the site are residential areas, a mine and a golf course. The site is also used as an illegal dumping site.

3.2.6 Water resources

The study site has wetland. The region has a relatively high rainfall regime and during the summer rain season these streams fill up quickly. According to the 2014 Mpumalanga Biodiversity Sector Plan, the wetland found on site which is a Channelled valley-bottom wetland is classified as Mpumalanga Highveld Wetland. The site falls under National Freshwater Ecosystem Priority Area. The wetland is within Mesic Highveld Grassland Group 4 which is considered to be critically endangered. The site is located within the

Upper Vaal Water Management Area. The sub-catchment to which the region of the site fall is the Upstream Vaal Dam.

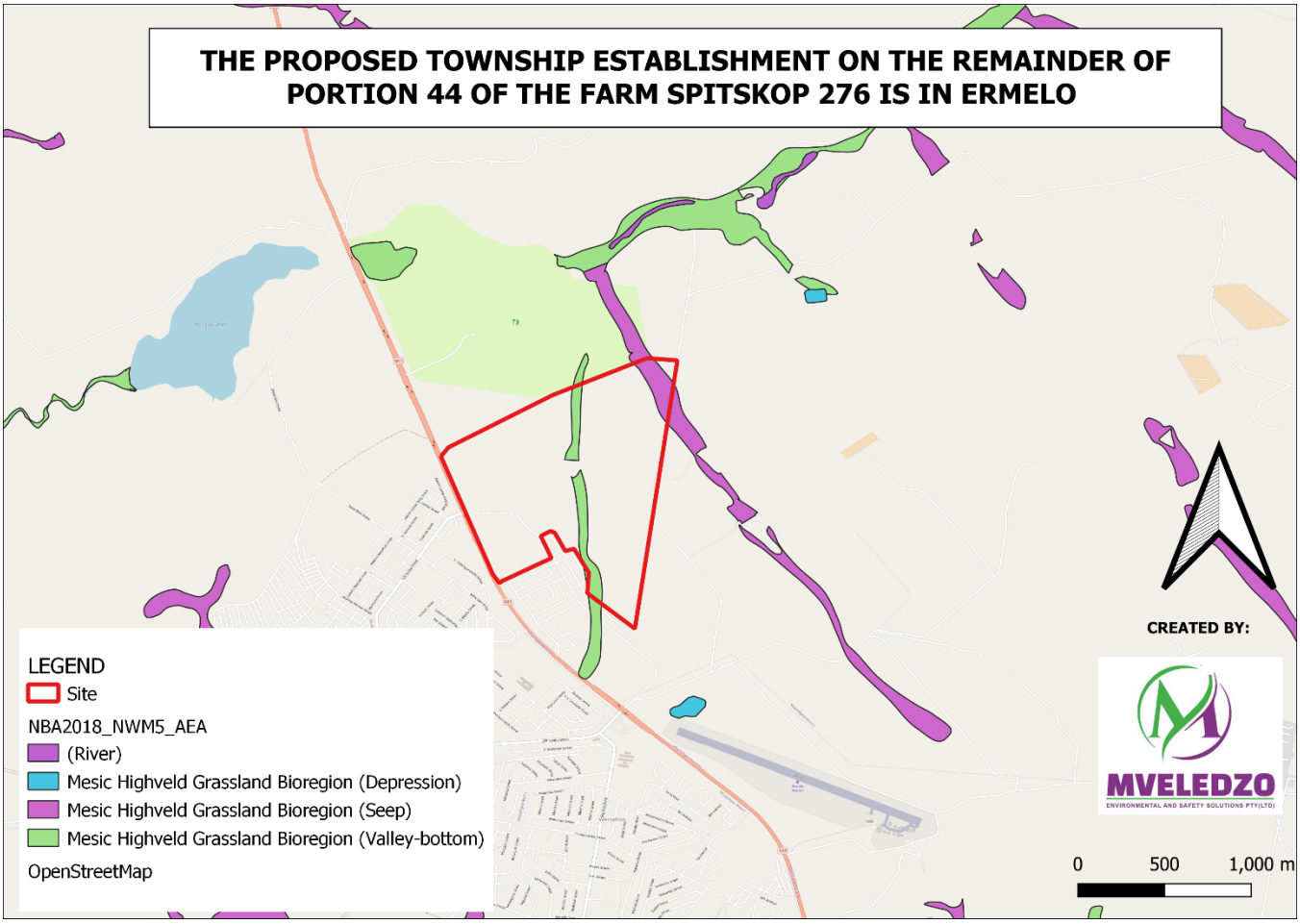

Figure 6: Water Resources Map (Attached as Appendix A6)

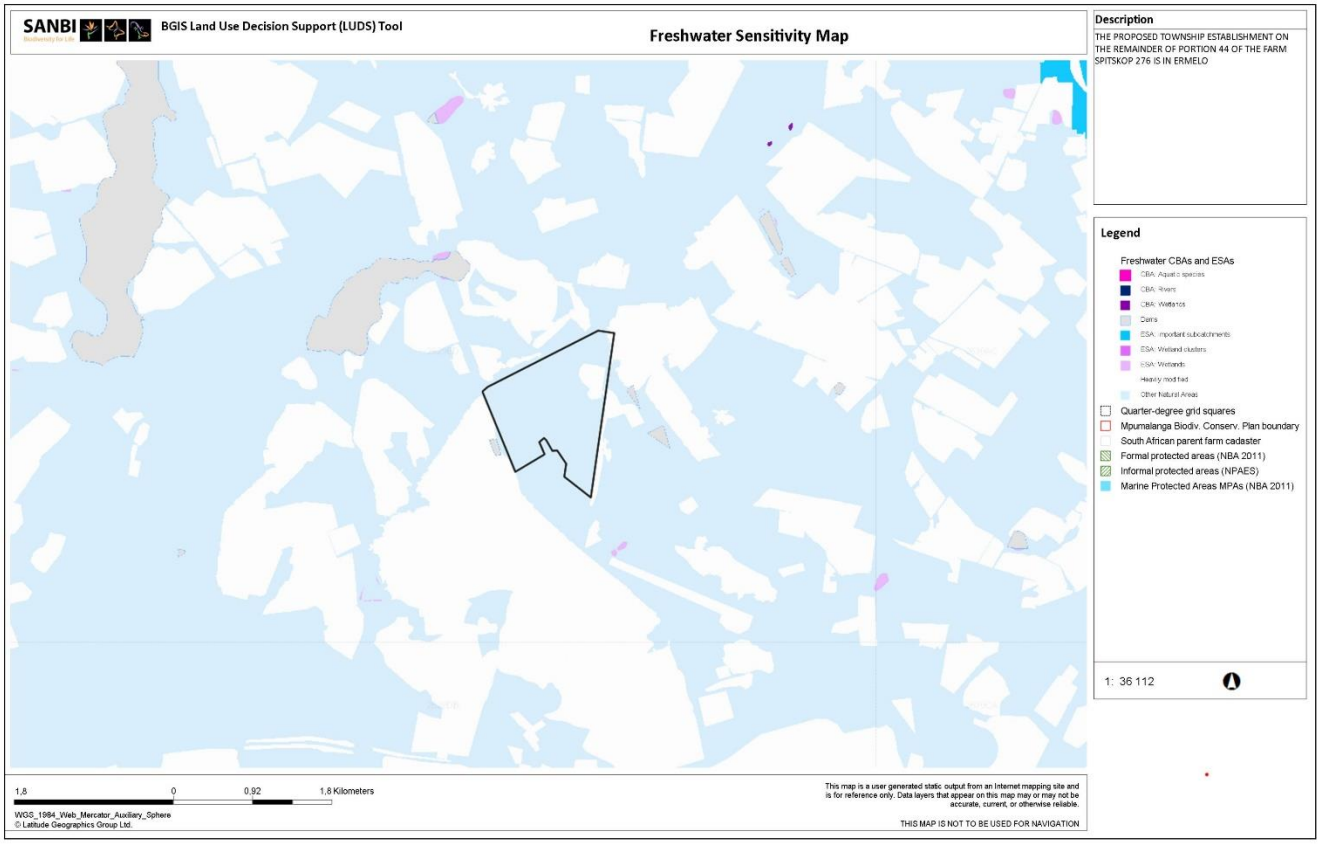

Figure 7: Freshwater sensitivity (Attached as Appendix A7)

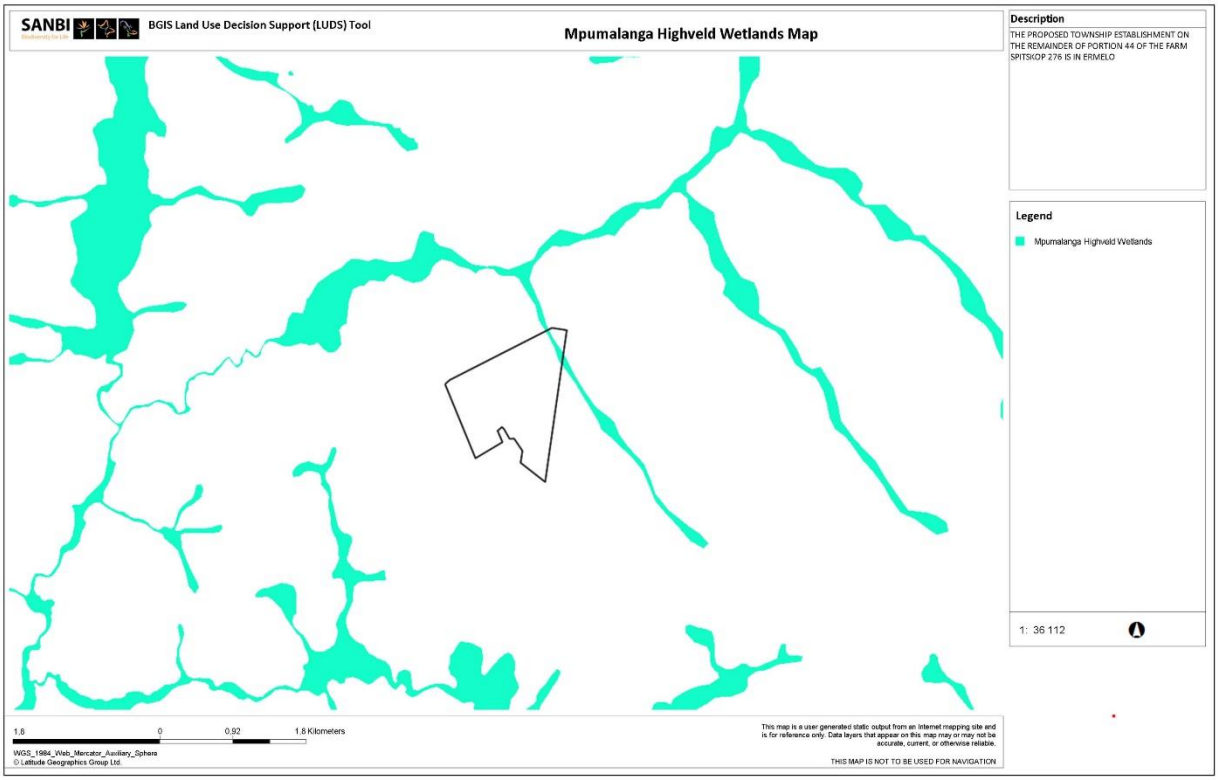

Figure 8: Mpumalanga Highveld Wetlands Map (Attached as Appendix A8)

3.2.7 Landcover

There is a golf course on the northern side of the site (green) (Figure 9). A wetland characterises as a Channelled Valley Wetland is also found on site. The larger portion of the site is covered with grasses of the Eastern Highlands Grassland. During the site investigations, it was evident that there is residential area with built houses towards the South western part of the site. According to land cover map, 2010, the site has an old mine and a mine, however, this could not be verified during the site visit. It is suspected that there is bulk sewer system that cross the site (Refer to site pictures attached as Appendix C).

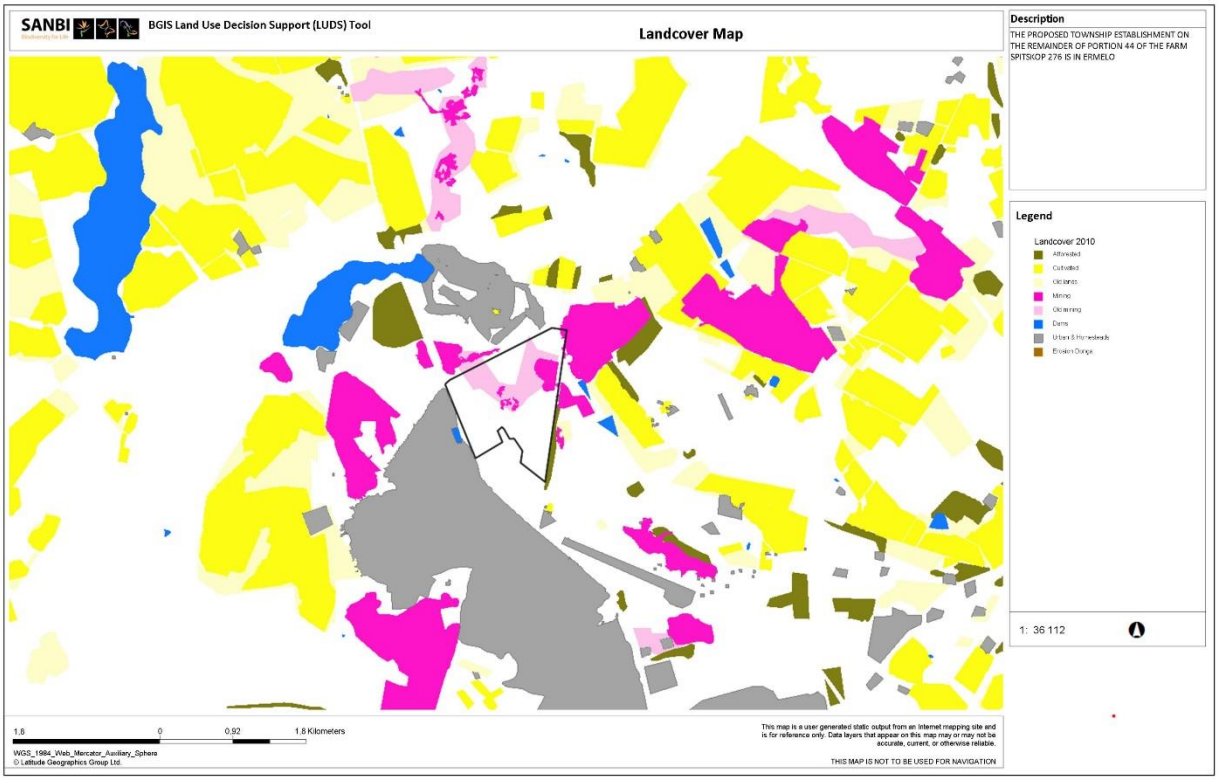

Figure 9: Land cover Map (Attached as Appendix A9)

3.2 Socio Economic Environment

3.2.1 Demographics

Msukaligwa population dynamics is based on statistics derived from Statistics South Africa 2011 census and 2016 Community Survey data, the Gert Sibande District Municipality and other sources. Statistics South Africa data had been used for the demographics and where data could not be derived from Statistics South Africa, other sources have been used. The population of Msukaligwa grew by 15 231 persons between 2011 and 2016 at an annual growth of 2.2% to 164 608 persons making it the 4th largest population in Gert Sibande District in 2016.

3.2.2 Population by sex and Age

The Census (2011) and Community Survey (2016) indicate that there was a decrease in population of those aged between 5 – 14, these are important stages in the development of children and since table 8 illustrates a decrease in population of this age group, this may suggest that parents are taking their children elsewhere for better education opportunities. As depicted on table 8 below, there is a population growth in the age groups with age group 0 – 14 comprising 45761 persons or 28% of the total population and 15 – 34

comprising of 67783 persons. The youth population contributes 41.2% of the total population of Msukaligwa being the largest group in the population. With the youth population contributing a larger percentage of the population, this is a clear indication that most of the youth are joining the job market implying that the municipality together with sector departments and NGOs must proactively engage in a joint effort to address issues of unemployment, skills development, provision of basic services and housing.

According to the 2016 Community Survey data, as compared with the previous two Census data, a drop in a number of females can be observed as females contribute 49.9% and males 50.1% of the total population of Msukaligwa municipality. Female headed households are at 37.8% and child headed household of ages 10-17 years is 0.6% in 2016.

Between the ages of 45-49 years, the population cohort remained relatively the same thus showing signs of slowing down and this seems to indicate this population is showing signs of slowing down. Despite the population decrease in the above mentioned groups, the table indicates that the overall population has continued to grow between 2011 – 2016.

Table 8: Population by sex and Age.

Age Groups	2011			2016 (Community Survey)		
	Male	Female	Total	Male	Female	Total
0-4	8301	8273	16574	8818	8886	17 704
5-9	7590	7271	14861	7433	7109	14 542
10-14	7030	6944	13974	6774	6741	13 515
15-19	7532	7542	15074	7860	7904	15 764
20-24	8089	7908	15997	8853	8933	17 786
25-29	7969	7520	15489	9461	9600	19 061
30-34	5829	5359	11188	8155	7017	15172
35-39	4794	4741	9535	6117	5843	11 960
40-44	4125	4191	8316	4823	4551	9 374
45-49	3427	3921	7348	3775	3567	7 342
50-54	3001	3238	6239	2942	3151	6 093
55-59	2417	2673	5090	2847	2727	5 574
60-64	1656	1970	3626	1815	2102	3 917
65-69	969	1192	2161	1360	1496	2 856
70-74	649	1082	1731	788	1331	2 119
75-79	365	638	1003	301	589	890
80+	370	801	1171	319	620	939
TOTAL	74113	75264	149377	82442	82166	164608

3.2.3 Population groups

Table 9 below reflects that the population of Msukaligwa local municipality grew with 15 231 persons during the period 2011 to 2016 with an annual average growth of 2.2%. Noticeably is the decrease on the white and Asian population over the past five years though while observing no change on coloured community.

A possible explanation to the decline of the White population could be a result of internal migration where other municipalities become recipients of in-migrants. Despite the negative net migration of the White population, the overall population of the municipality has continued on an upward trajectory.

According to Stats SA (2016 Community Survey - CS), Msukaligwa's population increased from 149 377 in 2011 to 164 608 people in 2016 which presents the 11th largest population in the province and 14.5% of total population of Gert Sibande in 2016.

Table 9: Total Population by Group

Population Group	2011		2016	
	No.	%	No.	%
Black African	131625	88%	150823	91.7%
White	14707	10%	11288	6.8%
Coloured	892	0.6%	1004	0.6%
Indian or Asian	1678	1.1%	1493	0.9%
Other	475	0.3%		
Population	**149377**	**100%**	**164608**	**100%**

Table 10 below reflects population and household figures within Msukaligwa Municipality as extracted from GSDM WSDP 2010 - 2014 and Statistics South Africa 2011 census. The municipality is predominantly rural in nature with key anchor towns that dominate the urban settlements. These create a big challenge for the municipality to provide services especially at the rural or farmlands as coordinated planning and development became expensive in services provision. The Municipality also comprises of mining operations, timber industries, agricultural land, transport and tourism areas as its economic base.

Most of the basic services are rendered within the municipality though some rural areas are still faced with some challenges in the provision water, sanitation and electricity. There is a backlog of 1.5% of households without hygienic toilets, 11.1% without electricity and 6.7% without piped water. Further challenges include lack of safe and reliable water supply, inadequate roads and ageing services infrastructure.

Table 10: Msukaligwa Local Municipality Demographics per Unit and Households

Unit	Ward	2011		2016 (Community Survey)	
		Population	Households	Population	Households
Ermelo	7,8 , 16	34714	9487	38251	11840
Wesselton	1-6, 9, 17	52599	15577	57968	19446
Breyten	13	8887	2289	9793	2857
KwaZanele	14	5926	1657	6530	2068
Chrissiesmeer	19	2454	741	2704	925
KwaChibikhulu	19	3427	1034	3776	1290
Davel	10	1187	304	1308	379
KwaDela	10	3478	887	3832	1107
Lothair	12	32	8	35	10
Silindile	12	1384	346	1525	432
Silindile	15	5758	1484	6345	1852
New Scotland	15	202	52	223	65
Warburton & farms	19	550	168	606	210
Nganga	19	2012	606	2217	756
Sheepmoor	11	2841	628	3130	784
Rural Ward 9	9	2461	690	2712	861
Rural Ward 10	10	3817	979	4206	1222
Rural Ward 11	11	4445	965	4898	1204
Rural Ward 12	12	1877	494	2068	617
Rural Ward 13 & 14	13 & 14	512	128	564	160
Rural Ward 15	15	4142	1086	4564	1355
Rural Ward 16	16	216	57	238	71
Rural Ward 18	18	6456	1265	7114	1579
TOTAL		**149377**	**40932**	**164608**	**51089**

3.2.4 Education

Data from the Community Survey (2016) indicates that the population in Msukaligwa aged 20 and above completed grade 12 which increased from 33 673 in 2011 to 43 234 in 2016 (increase of 9 561) being an increase of 28.4% for the period under review. Msukaligwa grade 12 pass rate improved from 74.1% in 2011 to 77.8% in 2016, which was the 3rd highest in the District and 7th lowest of the municipal areas of the Province (Stats SA, 2016). According to basic education data obtained from the District Municipality's IDP, the Grade 12 pass rate for Msukaligwa was 82.3% (2017) and 80% (2018) thus placing Msukaligwa 8th highest of the municipal areas of the Province. The decrease in matric results remains a concern that requires municipal assistance in the form of the provision of services that will assist the Department of Education (DoE).

In 2018, Msukaligwa municipality matriculates achieved a 37% university admission. Once these students graduate, the municipality needs to ensure that it provides the educated young people in the area with economic opportunities. The dilemma is that currently; such opportunities do not exist as the economy is slowing down whilst the population continues to grow.

Looking at table 11 below, one notes a decrease of 9.6% of persons with no schooling between the years 2011 and 2016. Despite this positive decrease, there remains a population of children within the municipality who remain without schooling. Furthermore, there remains a population, 15 years and above, who are without a post matric qualification. The municipality cannot simply turn a blind eye on these facts as it is the municipality's responsibility to ensure that support is given to such segments. It, therefore, becomes imperative for the municipality to provide necessary support to the DoE and the Department of Higher Education (DHOE) in ensuring that goal 4 of the SDGs goal is realized.

Table 11 also illustrates improvements in the functional literacy rate as there has been a decrease in the number of people who unable to adequately read and write between the years 2011-2016. In 2018, Msukaligwa ranked 6th in terms of functional literacy in the province and has been showing a steady improvement which is a positive for the municipality. This is a decrease further supports goal 4 of the SDGs which encourages lifelong learning opportunities for all (United Nations, 2018).

Table 11: Levels of Education

Education Indicators	2011	2016
Number of people 15+ with no schooling	12 213	11 030
% Population 15+ with no schooling	8.2%	9.6%
% Population 15+ with matric and post matric qualification (%)	23.6%	39.6%
% Functional Literacy rate (%)	51.4%	42.7%

3.2.5 Labour Profile

- Labour Indicators

Table 12 below depicts the labour force comparison within Msukaligwa Municipality for the period 2011 to 2016. In 2016, the unemployment rate stood in the municipality stood at 23.6% (HIS Global Insight figures) which was a decrease of 3.2% from unemployment figures of 2011 which stood at 26.8% in 2011. Furthermore, data from 2016 showed a reduction in the economically active persons as compared to 2011 figures. This reduction of unemployment figures is an indication that the labour market was absorbing more people or it could have been a result of high retirement rates as figures showed an increase on those persons that are not economically active.

The unemployment rate further deteriorated from 23.1% in 2014 to 25.1% in 2018. Although employment levels increased between 2014 & 2018, this growth has been rather slow because on average, there have just been a mere 1 000 new jobs per annum during this 4-year period.

Evidently, unemployment is a crisis that requires key partnerships between the local municipality, district municipality, business/private sector and government sectors

Table 12: Employment Status

	2011	2016
Employed	41,698	43,751
Unemployed	15,267	15,084
Economically active	56,969	53,208
Not economically active	51,476	52,565
Total	149,377	164,608

According to information derived from the Socio-Economic Profile report by the Provincial Department of Economic Development and Tourism, the unemployment rate for females and males are 31.4% and 18.1% respectively while youth is at 34.5% in 2016.

- **Sectors of Employment and their Contribution to the Regional Economy**

The municipality comprises a number of sectors that contribute to the regional economy and providing employment to the people of Msukaligwa and surrounding areas.

The table below depicts percentage of employment per sector with the leading industries in terms of employment being Trade, Community Services and Agriculture and with 23.7%, 19% and 11.5% respectively. There is a significant increase in the Trade sector and a decrease of 8.8% and 1.8% in Agriculture and Community Services sector respectively in the period 2012 to 2015.

Table 13: Employment per Sector & Contribution to Regional (Gert Sibande) GVA

	2012		2015	
	Employment	Contr. to GVA	Employment	Contr. to GVA
Agriculture	20.3%	14.4%	11.5%	14.6%
Mining	9.8%	10.8%	7.7%	11.5%
Manufacturing	5.4%	0.6%	7.8%	0.8%
Utilities	0.7%	8.4%	0.8%	9.5%
Construction	5.3%	6.9%	3.9%	7.4%
Trade	17.7%	18.9%	23.7%	20.4%
Transport	5.4%	28.3%	6.9%	28.7%
Finance	5.7%	25.1%	9.6%	24.3%
Community Services	20.8%	21.2%	19.0%	21.4%
Private Households	8.9%	-	9.1%	-
Total	**100%**	**11.8%**	**100%**	**13.4%**

3.2.6 Inequality and poverty levels

According to statistics as contained in the table 14 below, the municipality is faced with challenges regarding people living below minimum living standards which impacts negatively on revenue collection and service delivery to the community. During the period 2011 to 2016, there has been a significant increase on the percentage of people living in poverty. There is an increase on people living in poverty at a rate of 38.2% which is high implying that the municipality in collaboration with other state departments must work hard to deal with this challenge of reducing poverty levels within its communities. Vision 2014 as contained in the PGDS to halve poverty by 2014 had passed but there are still some significant pockets of poverty within our communities.

Table 14: Population and People below minimum living standard

Indicators	2011	2016
Gini co-efficiency	0.61	0.61
Poverty rate	33.6%	38.2%
People in Poverty	56,823	60,213
Poverty gap (R Million)	R137	

4. NEEDS AND DESIRABILITY

The proposed township establishment is in line with the National Development Plan (NDP) 2030. The NDP seeks to reverse spatial effects of apartheid. According to the NDP, apartheid left a terrible spatial legacy. While about 3.2 million households have benefited from new housing, services and infrastructure have been provided to many communities, there is still a limited progress that has been made in reversing entrenched spatial inequities. In some instances, post-1994 policies have reinforced the spatial divides by placing low-income housing on the periphery of towns and cities. The proposed establishment is located approximately 3 km North-West of Ermelo CBD.

According to the IDP 2020 / 2021, the main challenge faced by the municipality is the shortage of land for housing purposes at some units of the municipality and the only way to overcome this challenge is by securing enough land for human settlements and other social amenities. Due to financial constrains the municipality is unable to secure/procure enough land for this purpose and therefore rely on assistance from DRDLR, DARDLA, COGTA, DoHS and other funding sources to secure land for housing. Since human settlement goes along with other basic services, a challenge still remains with the municipality to service some of the land available for human settlements which is one of the most contributing factors to housing backlog as communities cannot be housed without services. The municipality should therefore work jointly with the District and all relevant government departments in order to overcome this backlog. The proposed project is addressing the said challenge.

According to the South African Constitution, proper sanitation is a basic need. Township establishment also assist in provision of services such as infrastructure, electricity, water, waste management facilities and sewerage systems that are provided by the municipality. This also assist in alleviating pollution that may be caused by illegal dumping and improper sewerage systems.

Township establishments are also a solution to land grabs that may be a threat to livelihoods. Some areas that are occupied unlawfully may be susceptible to disasters such as floods, sink holes etc. Most of the time, there are no environmental studies that are undertaken in these areas to ensure that there are safe to be used for human settlement.

Within the National Development Plan, it is stated that the purpose of the plan aims to eliminate poverty and reduce inequality by 2030. It is further stated that the country can achieve these goals by drawing on the energies of its people, growing an inclusive economy, building capabilities, enhancing the capacity of the state and promoting leadership and partnership throughout society. The proposed establishment will

assist in ensuring that previously disadvantaged people are able to afford a living close to the CBD as these will be low to medium income residential stands.

5. ALTERNATIVES

The EIA Regulations stipulate that a requirement of the Environmental Assessment process is to investigate alternatives to the project proposal. The EIA Regulations define “Alternatives”, in relation to a proposed activity, as different means of meeting the general purpose and requirements of the activity, which may include Alternatives to –

a) The property on which or location where it is proposed to undertake the activity;

b) The type of activity to be undertaken;

c) The design or layout of the activity;

d) The technology to be used in the activity; and

e) The operational aspects of the activity.

f) No-go alternative

For the purposes of this EIA, the following alternatives were considered:

5.1 Project Alternative

No project alternatives were considered within the ambit of this EIA as the site is well suited for the proposed establishment. The establishment is one of the main mandates of the municipality as supported by the National Development Plan (NDP).

5.2 Site Alternative

No site alternatives were investigated. The site is the only large vacant area that will be able to support the proposed establishment.

5.3 No go Alternative

The 'no-go' alternative refers to the scenario in which the proposed activity does not take place on the site and will remains as it is.

If the no-go alternative is taken, the impacts that can be anticipated to be associated with the proposed establishment would not come to pass and the conditions and trends on the property can be expected to remain the same. Advantages and disadvantages that can be expected in case of the no-go alternative being selected include:

Advantages

- The topography of the projected site will remain unchanged thus retaining its original vegetation cover without any major land disturbances.
- The habitat that is associated with the original vegetation will remain.
- Risk of soil erosion from non-vegetated access roads between the trees will be minimised.

Disadvantages

- The potential for employment opportunities as well as associated economic ripple effects for small businesses would not be realised
- There won't be development of low- medium income residential houses to accommodate previously disadvantaged individuals.
- There won't be provision of basic sanitation and infrastructure services to help in attracting investments and economic growth.
- The goal of the municipality regarding the developing township will not be realised as per the NDP will not be realised.

6. PUBLIC PARTICIPATION PROCESS

Public participation is an essential and regulatory requirement for an environmental authorisation process and is guided by Regulations under NEMA, specifically the EIA Regulations, 2014 (amended 7 April 2017).

The sharing of information forms the basis of the public participation process and offers the opportunity to Interested and Affected Parties (I&APs) to become actively involved in the EIA Process from the outset. The public participation process is designed to provide sufficient and accessible information to I&APs.

The public participation aims to ensure that:

- Information that contains all the relevant facts in respect of an application is made available to:
- I&APs for review.
- I&APs and stakeholders' participation is facilitated in such a manner that stakeholders are provided with a reasonable opportunity to comment on a proposed project.
- An adequate public review period is provided for IAPs to comment on the findings of the draft Environmental Impact Report and draft Environmental Impact Assessment Report, and EMPr (this is based on the legislated timeframes provided, i.e. 30-days for each draft report)
- On-going communication with registered parties is maintained to ensure that IAPs are kept informed of the progress of the environmental assessment process.
- Public participation uses the following methods to inform IAPs about a proposed project:

6.1 Written Notifications

A Background Information Document (BID) is used to briefly introduce the proposed project to the stakeholders and outline the Environmental Impact Assessment process it follows. The BID (attached as Appendix D1) as well as the notification letter (attached as Appendix D2) will be distributed to I&Aps.

6.2 Newspaper Advertisement

A newspaper advertisement was placed in the local newspaper on *Tribune ePaper* on the 21st of March 2022 in order to introduce the project and to inform the public about the draft Environmental Impact report (EIR) for 30-days public review period. The advertisement will also serve to invite members of the public to register as I&APs for this process. Proof of the advertisement has been attached as Appendix D3

6.3 Site Notices

Site notices were strategically placed around the site, nearby residential area as well as in Ermelo town CBD where the proposed town establishment is situated. This was done to notify the public and I&APs. These site noticed were distributed on the 16th of August 2022. Proof of site notices has been attached as Appendix D4.

6.4 Stakeholders database

A stakeholder's database contains information of all identified relevant people and organisations that may be affected by the project and those who follow under the jurisdiction of the project area i.e. departments, adjacent landowners etc. The stakeholder database has been attached as Appendix D8.

6.5 Comments and Response Report

All comments received from I&Aps and stakeholders has been attached as Appendix D6. Comments were received from the competent authority and during the public participation meeting.

6.6 Public Participation meeting

Should the need for public participation arise, the minutes will be attached on the Final EIR.

7. IMPACT ASSESSMENT

7.1 Methodology of Impact assessment used to identify and rank:

The potential environmental impacts associated with the project will be evaluated according to its nature, extent, duration, intensity, probability and significance of the impacts, whereby:

Nature: A brief written statement of the environmental aspect being impacted upon by particular action or activity.

Extent: The area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment phase of a project in terms of further defining the determined significance or intensity of an impact. For example, high at a local scale, but low at a regional scale;

Duration: Indicates what the lifetime of the impact will be;

Intensity: Describes whether an impact is destructive or benign;

Probability: Describes the likelihood of an impact actually occurring; and

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

Table 15: Criteria used to rate the impacts

Criteria	Description			
Extent	**National (4) (N)** The whole of South Africa	**Regional (R) (3)** Provincial and parts of neighbouring provinces ®.	**Local (L) (2)** Within a radius of 2 km of the construction site (L).	**Site (S) (1)** Within the construction Site (S).
Duration	**Permanent (P) (4)** Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.	**Long-term (L) (3)** The impact will continue or last for the entire operational life of the development but will be mitigated by direct human action or by natural processes thereafter. The only class of impact which will be non-transitory.	**Medium-term (M) (2)** The impact will last for the period of the construction phase, where after it will be entirely negated.	**Short-term (S) (1)** The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase.
Intensity	**Very High (V) (4)** Natural, cultural and social functions and processes are altered to extent that they permanently cease.	**High (H) (3)** Natural, cultural and social functions and processes are altered to extent that they temporarily cease.	**Moderate (M) (2)** Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way.	**Low (L) (1)** Impact affects the environment in such a way that natural, cultural and social functions and processes are not Affected.
Probability of Occurrence	**Definite(D) (4)** Impact will certainly occur.	**Highly Probable (H) (3)** Most likely that the impact will occur.	**Possible(P) (2)** The impact may occur.	**Improbable (I) (1)** Likelihood of the impact materializing is very low.

Impact Reversal	**Highly Impossible (H) (4)** Impact reversal will certainly be Impossible.	**Moderate (M) (3)** Impact can be reversed to some extent with loss of natural resources.	**Possible (P) (2)** High possibility of impact reversal.	**Definite (D) (1)** Impact can be totally reversed.
Loss of irreplaceable resources	**Definite (D) (4)** Resources will definitely be lost.	**Highly Probable (HP) (3)** Most likely that resources will be lost.	**Possible (P) (2)** Resources may be lost.	**Improbable (I) (1)** Loss of resources is highly unlikely.

Significance is determined through a synthesis of impact characteristics. Significance is also an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

Significance=Extent+ Duration +Intensity x Probability

Table 16:Significance weighing

Low impact/ Minor (3 -10 points)	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.
Medium impact/ Moderate (11 -20 points	Mitigation is possible with additional design and construction inputs.
High impact (21 -30 points)	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.

Very high impact/ Major (31 – 48 points)	Permanent and important impacts. The design of the site may be affected. Intensive remediation is needed during construction and/or operational phases. Any activity which results in a "very high impact" is likely to be a fatal flaw.
Status	Denotes the perceived effect of the impact on the affected area.
Positive (+)	Beneficial impact.
Negative (-)	Deleterious or adverse impact.
Neutral (/)	Impact is neither beneficial nor adverse.
It is important to note that the status of an impact is assigned based on the status quo – i.e. should the project not proceed.	

The suitability and feasibility of all proposed mitigation measures is included in the assessment of significant impacts. This was achieved through the comparison of the significance of the impact before and after the proposed mitigation measure is implemented.

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the construction phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

7.2 The positive and negative impacts of the proposed activity

The identified positive and negative impacts of the proposed project include the following:

7.2.1 Negative impacts

Biophysical impacts

- Removal of vegetation;
- Destruction of habitats resulting from vegetation removal;
- Underground water contamination by fuels, paints etc.
- Dust emission from gravel roads and excavation;

- Exposure of soil resulting from removal of vegetation which may make the soil more susceptible to erosion due to surface run-off;
- Compaction of soil due to vehicles driving over the soil surface;
- Land degradation;
- Soil erosion.

Social impacts

- Increase in traffic congestion in the area;
- Noise generation from people, vehicles and machinery;
- Compromised safety and security of people.

7.2.2 Positive Impacts

Biophysical impacts

- Sanitation systems will be installed reducing pollution;
- Protection of sensitive environments that may be onsite;
- Protection of water resources that are in close proximity of the site as there will be buffer zones that will assist in reduction of degradation of these resources;
- Conservation of species that may be endangered through hunted or killed as these will carefully be relocated (if needs be) during the pre-construction phase.

Socio- Economic impacts

- Safe and secure residences;
- Local economic development through increased support of local small and medium enterprises;
- Additional affordable housing stock with supporting amenities and complimentary land uses;
- Additional commercial and business opportunities in the region;

- Tenure and asset security;
- Access to essential infrastructural services such as energy, potable water, sanitation, communications and access;
- Enhanced social services access;
- Human and social capital development;
- Many direct and indirect spin-off benefits, such as job creation, capacity building, rates for the municipality and the upgrading of supply of services.

7.3 Potential environmental impacts associated with the planning, establishment, construction and operation phases establishment

Table 17: Potential Environmental Impacts Assessment

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
PLANNING/ PRE-CONSTRUCTION PHASE														

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
Policy and Legal requirements	• Failure to comply to relevant legislations may result in offense and hazards and may lead to imprisonment or fines,	N/A	N/A	1	3	3	3	21 (-ve)	1	1	2	2	8 (-ve)	Low
MITIGATION AND MANAGEMENT MEASURES • The project Manager must ensure that all relevant permits, consent obtained from all necessary regulatory bodies and also ensure that all subsequent permits and written authorisations have been issued early in the planning phase. • The project must be conducted in accordance with the natural environmental management act and associated applicable legislation. • No unauthorized access to the site. • A traffic management plan should be compiled for this development and approved by MLM prior to start of the establishment phase. • The project manager or contractor must obtain on all relevant information and documentation before commencing with the proposed activity. • There must be sufficient facilities and resources to ensure that the township establishment can conform to both the permit conditions and relevant minimum requirements. For example, there should be sufficient trained staff to monitor, control and record incoming waste where required													
Environmental training	• Harm to the environment due to employees being unaware of how their activities may impact the environment	N/A	N/A	2	3	3	3	24(-ve)	1	2	2	2	10(- ve)	Low

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
MITIGATION AND MANAGEMENT MEASURES • All site personnel must have a basic level of environmental awareness training. • All environmental issues must be communicated to all personnel, stakeholders, interested and affected parties that shall be involved in the establishment and operation of the project • Workers must be properly trained in all aspects relating to the operation of the facility and must be familiar with the content of the environmental authorization and Environmental Management Programme.														
ESTABILISHMENT AND CONSTRUCTION PHASE														

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
Impacts on soil The clearance of vegetation for the	• Loss of topsoil and erosion occurring during the establishment phase. • Exposure of soil resulting from removal of vegetation which may make the soil more susceptible to erosion from surface run-off. • Compaction of soil due to vehicle and machinery movement. • Use existing roads as far as possible. • Contamination of soil due to concrete mixing, accidental spillage of hydrocarbons etc.	M	P	1	3	3	4	28 (-ve)	1	3	2	3	18 (-ve)	Medium

MITIGATION AND MANAGEMENT MEASURES

- Areas that are situated on a sensitive environment, areas designated for vegetation clearing should be identified and visibly marked off.
- Erosion prevention measure should be put in place.
- Compacted areas are to be ripped to loosen the soil structure.
- Topsoil is to be stripped when the soil is dry, as to reduce compaction.
- Ensure that vegetation clearing is phased and restricted to the proposed township establishment area.
- Ensure that roads are not paved but well maintained (as gravel) to reduce the speed of water by promoting infiltration.

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
▪ Ensure that equipment and vehicles are maintained and in good working conditions. ▪ Spill kits must be available on site so that spills on site may be cleaned immediately after such incident. ▪ Excavated soil material must be correctly located and preferably covered to prevent erosion of the soil. ▪ The trench routes and associated working areas must be clearly demarcated before excavation takes place. ▪ Trench lengths shall be kept as short as practically possible before backfilling and compacting. ▪ Trenches should be re-filled to the same level as, or slightly higher (to allow for settlement) than the surrounding surface to minimise erosion. ▪ Recommendation made on the Geotechnical Reports titled “A Detailed Geotechnical Engineering Investigation studies for township development in Ermelo near Spitskop Ermelo, Mpumalanga Province, South Africa” must be adhered to. ▪ Proper run-off and subsurface drainage including damp proofing must form part of the permanent works in order to prevent ingress of sand or soil particles into the sub surface drain system. ▪ Trench backfill should be compacted in layers not exceeding 150mm in compacted thickness and should be compacted to 90 percent.														
Waste Impacts Site clearance waste and construction materials.	▪ Generation of construction waste and hazardous material such as fuel, oils, paint, rubble etc. ▪ General waste generated by construction workers on site	PR	R	2	3	3	3	24 (-ve)	1	1	2	3	12 (- ve)	Low
MITIGATION AND MANAGEMENT MEASURES ▪ Litter generated by the construction workers must be collected in rubbish bins and disposed of weekly at registered waste disposal sites.														

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
▪ All building rubble, solid and liquid waste etc. must be disposed of as necessary at an appropriately licensed refuse facility. ▪ Ensure that no refuse wastes are burnt on the premises or on surrounding premises. ▪ The construction site must always be kept in a clean and orderly state. ▪ Ensure that no litter, refuse, wastes, rubbish, rubble, debris and builders wastes generated on the premises be placed, dumped or deposited on adjacent/surrounding properties during or after the construction period of the project are disposed of at dumping site as approved by the Council. ▪ Waste is to be collected and disposed of in accordance with municipal waste management system. ▪ separate dry and wet waste on site by demarcating separate bins for that as far as possible. ▪ Manage waste generated during construction activities by ensuring that the design of the development includes adequate facilities for the temporary storage of waste, in terms of volume, location and storage containers. ▪ Ensure that waste handling, storage and collection is undertaken in accordance with the relevant legislation, practices and procedures. ▪ All hazardous waste that may be produced on site must be stored in closed containers until removal to registered landfill. ▪ The disposal of materials must be monitored and recorded by the ECO. ▪ The contractor should ensure that recyclables are stored separately on site and recycled (wherever possible) e.g. paper, cardboard, plastic, glass, metals, concrete, etc. ▪ An induction should be conducted to create awareness of no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimizing wildlife interactions etc.													

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
Impacts on groundwater and surface water. Contamination of groundwater due leachate of hydrocarbons (fuels), concrete mixing, paints, solvents etc.	▪ Contamination of groundwater and surface water through accidental leakage of hydrocarbons, concrete, paints etc.	–	M	3	4	3	3	30 (-ve)	2	2	3	2	14 (-ve)	Medium

MITIGATION AND MANAGEMENT MEASURES

- All vehicles shall be properly maintained and serviced so that no oil leaks occur on site.
- Spill trays must be provided for refuelling of plant vehicles.
- Spillage must be cleaned immediately using spill kits.
- No construction activities should be undertaken within 100 meters from any water body that is close to the site.
- Used paint tins should be stored in a separate closed container.
- All hazardous materials on site must be stored in closed containers until removal to registered landfill.

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
Safety, health and security.	▪ Loss of material and site equipment. ▪ A construction site can be a dangerous place and thus could result in harm to workers and surrounding community.	N/A	N/A	2	3	3	3	24 (-ve)	1	3	2	2	12 (-ve)	Medium
MITIGATION AND MANAGEMENT MEASURES ▪ Ensure that only suitably qualified personnel use construction vehicles. ▪ Ensure that the contact details of the police or security company and ambulance services are available on site. ▪ Only allow access to the site to only authorised personnel. ▪ The construction site to be fenced off to prohibit unauthorized entry. ▪ Health and Safety Officer to be appointed to continuously monitor the safety conditions during construction. ▪ If any valuable materials are to be left over night on site, a security guard must be hired to guard the materials. ▪ All construction staff must wear all the appropriate PPE i.e. gloves, helmets, dust masks, gloves etc.													
Impact on Air Quality (Dust)	▪ Dust and gaseous emissions as a result of construction activities.	–	P	2	3	2	3	21 (-ve)	2	2	2	2	12 (-ve)	Low
MITIGATION AND MANAGEMENT MEASURES ▪ Dust suppression to be implemented to reduce dust emissions ▪ vehicles are to be maintained regularly to minimize gaseous emissions.														

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
▪ Avoid site clearing during dry and windy periods as far as possible. ▪ Water browsers or equivalent must be used in order to suppress dust around site. ▪ Wetting down the silt to suppress dust where there has been clearance of plant. ▪ Erection of shade netting to prevent off site dust migration. ▪ Site clearing should be limited at the actual footprint where the construction activities will take place. ▪ Regular manual sweeping of the surrounding roads and sidewalks. ▪ All areas disturbed during construction that are not required for a specific activity must be re-vegetated. ▪ Machinery should be serviced regularly to ensure that there is no excessive gaseous emission.														
Noise Noise associated with construction activities.	▪ Establishment phase impacts are anticipated to be mainly associated with machinery, e.g. bulldozers and tractors involved in vegetation clearance and soil preparation.	N/A	N/A	2	2	2	3	18 (-ve)	2	1	2	2	10 (- ve)	Low
▪ The construction contractor must use modern equipment, which produces the least noise. ▪ Any unavoidably noisy equipment must be identified and reasonably located in an area where it has least impact. ▪ The operation of machinery must be restricted to when it is actually required. ▪ No noise generating work is to be conducted outside of normal working hours as approved by the local authority. ▪ Neighbouring land occupiers must be notified when noise producing activities are planned at least 2 weeks before.														

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
▪ All construction activities should be undertaken during daylight working hours between the hours of 07:00 – 18:00. ▪ No construction activities may be undertaken on Sunday and public holidays unless authorised by the local authority and adjacent land residents have been informed. ▪ Provide all equipment with standard silencers as far as possible. ▪ Maintain silencer units in vehicles and equipment in good working order. ▪ Construction staff working in the area at which the 8-hour ambient noise level exceed 60 dBA must have the appropriate Personal Protective Equipment (PPE). ▪ All operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No. 85 of 1993).														

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
Storm water Management.	▪ Reduction potential of water logging on land.	BR	P	2	2	2	4	24 (-ve)	1	2	2	3	15 (-ve)	Medium

- Erosion control measures should be installed to stabilize the banks and prevent future erosion that may affect the development and the vegetation.
- Sewerage and waste water systems should be properly connected.
- Storm water drainages should be installed properly.
- Storm water, wherever possible, must be allowed to soak into the land in the area on which the water has been discharged.
- The storm water system, especially the discharge points, must be inspected and damaged areas must be repaired if required.
- Excessive quantities of silt laden runoff water must not be allowed to access the storm water system. In the event that silt runoff occurs in the development site, the cause of this must be investigated and suitable mitigation measures employed. This may include the vegetation of bare areas, installing flow diversion channels in consultation with an engineer, installing velocity reducing structures.
- Discharge points must be inspected for blockages of any kind; these must be removed timeously to ensure the efficient operation of the storm water management system.
- Upgrading of Bulk sewer is necessary to accommodate the additional load emanating from the proposed development.
- Excess stormwater, if any, should be collected along the roads and parking lots and adequately discharged into the existing stream.
- The drain should be wrapped with a proprietary geofabric that is capable of filtering out soil particles
- Storm water pipes should be completely surrounded with bedding material to provide uniform support and protection

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
Flora	▪ Uncontrolled clearance of vegetation of may result in removal of protected or important ingenious trees.	M	D	2	2	3	4	28 (-ve)	1	2	2	3	15 (-ve)	Low
▪ No large tree shall be cut down unnecessarily. ▪ Sparsely vegetated areas should be cleared first, with densely vegetated areas being cleared last. ▪ All vegetation not required to be removed must be protected against damage. ▪ Landscaping should make use of indigenous species, and preferably of species native to the study area and immediate surroundings. The species selected should strive to represent habitat types typical of the ecological landscape prior to construction. ▪ Areas designated for vegetation clearing should be identified and visibly marked off. ▪ The laying out of the buffer line (if required) must not result in a significant loss of any large indigenous trees. ▪ Obtain the necessary permits and licenses from DAFF for the relocation or destruction of any protected trees, plants before site clearance. ▪ The proponent must be committed to a conservation approach of practice and the actual footprint of disturbance must be kept to a minimum. ▪ Watercourses should be avoided during all the phases of the construction. ▪ Relocation of important species, identification and demarcation of specimens and sub habitats not to be disturbed will have to be done beforehand by a specialist. ▪ Important species (flora) that will be threatened by the development must be relocated to safer habitats by suitable specialists.													

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
Introduction of alien species. Introduction of alien plant species.	▪ The clearing of vegetation may result in the loss of endemic plant species. ▪ Development sites tend to be highly susceptible to weed and invader plant spread as the natural vegetation is disturbed and alien seeds are inadvertently introduced.	M	P	2	3	3	3	24 (-ve)	1	2	2	3	10 (-ve)	Medium
MITIGATION AND MANAGEMENT MEASURES ▪ Conduct alien invasive species monitoring and eradiation on an annual basis. ▪ Alien species found on site should be removed regularly. ▪ As far as possible, indigenous plant species naturally growing along on the site should be used for re-vegetation. ▪ Any species of significance discovered on-site should be buffered and declared no-go zones														
Impacts on Fauna	▪ Increased levels of noise, pollution, disturbance and human activity may negatively affect fauna which inhabit the site. ▪ The clearance of vegetation for the establishment of the township and associated infrastructure.	M	HP	2	2	3	3	21 (-ve)	1	2	2	3	15 (-ve)	Medium
MITIGATION AND MANAGEMENT MEASURES														

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
▪ It is advised that sensitive areas designated for vegetation clearing should be identified and visibly marked off. ▪ Buffer zones must be established and demarcated as no-go zones prior to commencement of the construction activities. ▪ Awareness and training should be conducted to inform people of the environmentally sensitive areas on site ▪ No firewood may be collected within the buffer zone areas. ▪ Do not disturb nests, breeding sites or young animals. Do not attempt to kill or capture snakes unless directly threatening the safety of employees. ▪ Fencing around the property should allow movement of herpetofauna at certain points. ▪ No animal may be hunted, trapped, snared or captured for any purpose whatsoever. ▪ Speed of vehicles should be limited to allow for sufficient safety margins. ▪ Fences must be monitored to ensure no animals are trapped. ▪ Proper toilet facilities must be located outside the sensitive ecological areas. ▪ Chemical toilets must be provided and always well serviced and spaced as per occupational health and safety laws, construction regulations and placed outside the buffer zones. ▪ Avoid vegetation clearance during the breeding season.													
Impacts on heritage resources	▪ Establishment activities could result in irreversible damage or destroy heritage resources and depletion of the archaeological record of the area	HI	HP	1	3	3	3	21 (-ve)	1	2	2	2	10 (-ve)	Medium
MITIGATION AND MANAGEMENT MEASURES														

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
▪ Construction and establishment process must cease and SAHRA and/ or MPHRA) should be notified so that an archaeologist can investigate further if any of the following are uncovered: o Human remains/graves; o Concentration of stone tools and faunal remains; o Stone walling or any sub- surface structures. ▪ Known sites must be clearly marked in order that they can be avoided during construction activities. ▪ The contractors and workers must be notified that archaeological sites might be exposed during the construction activities ▪ Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or paleontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999). ▪ Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible. ▪ All discoveries shall be reported immediately to a heritage practitioner MPHRA and/ or SAHRA so that an investigation and evaluation of the findings can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken. ▪ Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site.													

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
Fire hazards Potential fire outbreak on site**.**	▪ Potential of fire hazards that could harm people, vegetation and structures on sit.	HI	D	2	2	3	3	21 (-ve)	1	2	3	2	12 (-ve)	Low

MITIGATION AND MANAGEMENT MEASURES

- The Contractor shall ensure that all site personnel are aware of the fire risks and how to deal with any fires that occur. This shall include, but not be limited to:
  - Regular fire prevention talks,
  - Posting of regular reminders for staff.
- Open fires for cooking purposes, if allowed must only be allowed at a demarcated area.
- The contactor must be prepared for the event of a fire by keeping fire extinguishers on site.
- The contactor must take all reasonable steps to extinguish any fires where other individuals may have started a fire, either intentionally or unintentionally.
- Burning of waste (paper, plastics etc.) is strictly forbidden
- Fire breaks must be established on site to avoid the spread of fire over to other adjacent areas.

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
Economic benefits	▪ The project will provide employment to skilled and unskilled labour during the establishment phase. ▪ The project will have economic investment benefits for the Msukaligwa Local Municipality	N/A	N/A	3	3	2	4	32 (+ve)	3	4	2	4	36 (+ve)	N/A
MITIGATION AND MANAGEMENT MEASURES ▪ Low skilled jobs will be created during the construction phase which will be beneficial for the local areas. ▪ Opportunities for training may occur, should any of the jobs require training. This will capacitate people in the area for current and future job opportunities. ▪ Small, medium and micro-sized enterprises (SMMEs) and other businesses will get first preference for contractual and sub-contractual work.														

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
Visual intrusion	▪ Alteration of aesthetic properties of the site due to construction activities and construction of permanent structures.	HI	N/A	2	2	3	3	21 (-ve)	2	2	2	2	12 (-ve)	Low

MITIGATION AND MANAGEMENT MEASURES

- Vehicles must be parked in one specific area whilst materials placed on site must be placed in neat piles in specified sections of the site prior to use.
- The site must be managed properly and all rubbish and rubble removed to a registered waste disposal facility.
- Excess soil and bedrock msut be disposed of at an appropriate facility.
- Refuse bins must be provided on site and these must be emptied regularly.
- Vehicles and machinery must be parked in a specific area away from the main road.

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
Traffic impacts	▪ Increased traffic congestion	N/A	N/A	2	2	3	3	21 (- ve)	2	2	2	2	12 (-ve)	Low
MITIGATION AND MANAGEMENT MEASURES ▪ Relevant traffic signage must be erected on and off the site to control traffic speeds and movements (as required). ▪ All vehicles travelling on site will adhere to the specified speed limits. ▪ The movement of all vehicles will be controlled such that they remain on designated routes. ▪ The detail design of the proposed township development should adhere to the prescribed specifications (and subsequent approval) of the applicable road authorities. ▪ Issues pertaining to damages and poor condition of the roads in close proximity of the site should be reported to the applicable authority and custodian of the respective roads. ▪ Appropriate signage and traffic measures must be implemented on the site to ensure safe and convenient access for passing traffic volumes.														
OPERATIONAL PHASE														

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
Soil	▪ Soil chemical pollution as a result of exhaust emissions, hydrocarbon spills and improper management of domestic waste. ▪ Land capability and land use of areas covered by roads and houses will be lost/changed forever	M	HP	1	3	2	3	18 (-ve)	1	3	2	2	12 (-ve)	Low
MITIGATION AND MANAGEMENT MEASURES ▪ Residents to be encouraged to report any hazardous spills to the municipality for advice on clean ups of spills. ▪ Proper waste management plan must be implemented. ▪ Harvest rainwater from roofs into rainwater tanks to reduce runoff. ▪ Landscape open public areas in such a way as to reduce runoff. ▪ Encourage residents to vegetate their garden spaces.														

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
Impacts on groundwater and surface water. Contamination of groundwater due leachate of hydrocarbons (fuels), concrete mixing, paints, solvents etc.	▪ Contamination of groundwater and surface water through accidental leakage of hydrocarbons, concrete, paints etc. ▪ Fatal flow during the operation of the cemetery may also contaminate groundwater	–	M	3	4	3	3	30 (-ve)	2	2	3	2	14 (-ve)	Medium

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
MITIGATION AND MANAGEMENT MEASURES ▪ All vehicles shall be properly maintained and serviced so that no oil leaks occur on site. ▪ Spill trays must be provided for refuelling of plant vehicles. ▪ Spillage must be cleaned immediately using spill kits. ▪ No construction activities should be undertaken within 100 meters from any water body that is close to the site. ▪ Used paint tins should be stored in a separate closed container. ▪ Due to establishment of the cemetery, ground water samples must be collected periodically to determine the groundwater quality. A geohydrological study must be undertaken prior the establishment of a cemetery. ▪ All hazardous materials on site must be stored in closed containers until removal to registered landfill.														

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
Traffic Impacts Vehicles moving into the site.	▪ Traffic congestion because of increased flow of vehicles to the site.	N/A	N/A	2	3	3	3	24 (-ve)	2	3	2	3	21 (-ve)	Medium

MITIGATION AND MANAGEMENT MEASURES

- Relevant traffic signage must be erected on all the roads close to site and new roads constructed to control traffic, speeds and movements (as required)
- Should there be any abnormal traffic loads as a consequence of the operation phase activities, the local municipality and relevant traffic authorities should be notified.
- All vehicles on site must adhere to the specified speed limits.
- The movement of all vehicles will be controlled such that they remain on designated routes.
- Care should be taken pertaining to the placing of signage in the proximity of access points to the township.
- Issues pertaining to damages and poor condition of the roads in close proximity of the site should be reported to the applicable authority and custodian of the respective roads.

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
Waste management Increased generation of waste.	▪ Generation of waste produced by residents and as well as organic waste from cutting of plants.	M	HP	2	3	2	3	21 (-ve)	1	3	2	2	12(-ve)	Low

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		

MITIGATION AND MANAGEMENT MEASURES

- Waste is to be collected and disposed of in accordance with municipal waste management system.
- Separate dry and wet waste on site by demarcating separate bins for that as far as possible.
- All building rubble, solid and liquid waste etc. must be disposed of as necessary at an appropriately licensed refuse facility.
- Waste bins to be emptied at least once a week or whenever they are full and the must be transported to a local registered landfill site.
- Manage waste generated during construction activities by ensuring that the design of the development includes adequate facilities for the temporary storage of waste, in terms of volume, location and storage containers.
- Ensure that waste handling, storage and collection is undertaken in accordance with the relevant legislation, practices and procedures;
- All hazardous waste that may be produced on site must be stored in closed containers until removal to registered landfill.
- Municipality must collect waste once a week as charged on rates and levies.
- The burning and on-site disposal of waste is prohibited.
- All sanitation facilities such as supply of toilets and clean water must be included as part of the cemetery establishment.

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
Increased noise level Noise from residents and visitors.	▪ Increased level in noise may cause a nuisance to the surrounding occupants resulting from the influx of residents and vehicles on site.	N/A	N/A	2	3	2	3	21 (-ve)	1	3	1	2	8 (-ve)	Low
MITIGATION AND MANAGEMENT MEASURES ▪ A noise control policy must be compiled and enforced to control the level of noise in the township														

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
Water usage Increase water consumption.	▪ Reckless usage of water resulting in shortage of water.	HI	D	1	3	3	3	21 (-ve)	1	3	2	2	-12 (ve)	Low

MITIGATION AND MANAGEMENT MEASURES

- Check for water leaks regularly.
- Residents to be encouraged to report sewage and pipe bursts as soon as possible.
- Ensure to install water saving water taps and systems in the residential complex.
- Drip Irrigation and Micro-Sprinklers shall be used by the project for irrigating the landscaped that shall be developed on site.
- The project must use only low flow and low flush – water saving plumbing fixtures, automatic level controllers at water tanks to reduce/optimize the demand side of water resource.
- Repairs for the damaged pipes should be carried out as soon as possible.
- Fine must be imposed to any personnel that is found leaving water pipes overflowing unattended.

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
Energy usage Use of energy saving technology	▪ Reckless use of energy can contribute to increased greenhouse emission through the use of coal electricity.	HI	D	2	3	3	2	- 16 (-ve)	2	3	2	2	14 (-ve)	Low
MITIGATION AND MANAGEMENT MEASURES ▪ Check the efficiency of electrical equipment and machinery regularly. ▪ Switch off lights and equipment when they are not required. ▪ Install energy-efficient lighting, fridges and other equipment. ▪ If possible, use other energy alternatives such as solar power.														

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
Visual intrusion Visual intrusion by activities being carried out on-site. Light pollution.	▪ Operational activities may impact on the aesthetic properties of the area. ▪ Light pollution from the development affecting the neighbouring residential area.	N/A	N/A	2	3	3	3	24 (- ve)	2	3	2	3	21 (-ve)	High

MITIGATION AND MANAGEMENT MEASURES

- Residents to be encouraged to keep the township clean.
- Minimise illumination by directing all lighting towards the ground and inwards away from the boundaries; avoid stark white fluorescent lighting; and avoid high wattage flood lights.
- Illumination of the buildings must take into account the possible distraction glare.
- Night time light sources must be directed away from, conservation areas, naturally vegetated areas, as this may be the cause of ecological disturbance
- The municipality must ensure proper maintenance of all public open spaces and public facilities.

NATURE / ACTIVITY	IMPACT SUMMARY	Reversibility	Irreplaceable loss	BEFORE MITIGATION				SIGNIFICANCE RATING (BEFORE MITIGATION)	AFTER MITIGATION				SIGNIFICANCE RATING (AFTER MITIGATION)	Residual risk
				E	D	I	P		E	D	I	P		
Employment opportunities	▪ Possible recruitment of maintenance workers resulting from the establishment of a new township.	N/A	N/A	3	3	3	4	36 (+)	3	3	3	4	36 (+)	N/A
MITIGATION AND MANAGEMENT MEASURES ▪ Workers must be sourced locally as far as possible														

7.4 Cumulative Impacts

Cumulative impacts are impacting that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities. This section provides a description and analysis of the potential cumulative effects of the proposed development with associated infrastructure and considers the effects of any such changes on the biophysical environment; and the socio-economic conditions.

Table 18: Cumulative Impacts

Nature / Activity	Significance (Without Mitigation)					Significance with mitigation
	Extent	Duration	Magnitude	Probability	Significance weighting	Significance weighting
Impacts on soil The clearance of vegetation for the town establishment.	Local	Long term	Moderate	Highly probable	High	Medium
Waste Impacts Minor waste generation during the operational phase.	Local	Short term	Low	Improbable	High	Low

Nature / Activity	Significance (Without Mitigation)					Significance with mitigation
	Extent	Duration	Magnitude	Probability	Significance weighting	Significance weighting
Impacts on groundwater Contamination of groundwater due leachate of fuels, oils, cemetery establishement.	Regional	Short term	Moderate	Probable	High	Low
Dust generation	Regional	Short term	Low	Probable	Medium	Low
Noise	Local	Short term	Very low	Highly probable	Medium	Low

Nature / Activity	Significance (Without Mitigation)					Significance with mitigation
	Extent	Duration	Magnitude	Probability	Significance weighting	Significance weighting
Impacts arising from the proliferation of alien species.	Local	Medium term	Moderate	Probable	High	Low
Impacts on Fauna Establishment activities may result in the disturbance of fauna which inhabits the site	Regional	Long term	Moderate	Highly Probable	Medium	Low
Impacts on heritage resources	Development site area	Medium term	Low	Highly Probable	Low	Very Low

Nature / Activity	Significance (Without Mitigation)					Significance with mitigation
	Extent	Duration	Magnitude	Probability	Significance weighting	Significance weighting
Fire hazard	Local	Medium term	Moderate	Probable	Medium	Low
Economic benefits	Regional	Medium term	Low	Definite	Medium (+ve)	High (+ve)

7.5 Specialist Studies

Specialist studies that may need to be undertaken for the proposed project include the following:

7.5.1 Heritage Impact Assessment

Desktop research revealed that the project area is rich in Late Iron Age and historical sites however, the field study did not identify any sites within the proposed development site. In terms of the archaeology, there are no obvious 'Fatal Flaws' or 'No-Go' areas. However, the potential for chance finds, remains and the applicant and contractors are urged to lookout for chance finds during construction.

The procedure for reporting chance finds has clearly been laid out and if this report is adopted by SAHRA, then there are no archaeological reasons why the proposed Township Establishment cannot be approved.

Recommendations:

- It is recommended that SAHRA endorse the report as having satisfied the requirements of Section 38 (8) of the NHRA requirements.
- It is recommended that SAHRA make a decision in terms of Section 38 (4) of the NHRA to approve the proposed township establishment project.
- From a heritage perspective supported by the findings of this study, the project is supported. However, construction activities should be approved under observation that the dimensions do not extend beyond the area considered in this report.
- Should chance archaeological materials or human remains be exposed during activities on any section of the proposed township establishment site, work should cease on the affected area and the discovery must be reported to the heritage authorities immediately so that an investigation and evaluation of the finds can be made. The overriding objective, where remedial action is warranted, is to minimize disruption of the project scheduling while recovering archaeological and any affected cultural heritage data as stipulated by the NHRA regulations.
- Subject to the recommendations herein made and the implementation of the mitigation measures and adoption of this heritage report, there are no significant cultural heritage resources barriers to the proposed township establishment project. SAHRA may approve the project as planned with special commendations to implement the

recommendations here in made.

The HIA report concludes that the impacts of the proposed township establishment project on the cultural environmental values are not likely to be significant on the entire site if the EMP includes recommended safeguard and mitigation measures identified in this report.

7.5.2 Traffic Impact Assessment (TIA)

The main objective of this TIA was to determine the impact on traffic and the need for transportation services due to the proposed Spitskop Township development. The study was also aimed at identifying any improvements necessary to accommodate the additional traffic and determine appropriate locality and layout for access to the proposed development. Based on the findings of this report, the following conclusions are made:

The desk study findings show that the TIA is warranted since the:

- Application is submitted to seek approval for rezoning or change in land-use from agriculture zone to mixed use township development.
- Application is submitted to seek approval for Spitskop Township Establishment
- Application is submitted for approval of access road at Point 1 as shown in Figure 4 of the TIA report.
- In terms of National Land Transport Act (NLTA), developments on property within the area of the municipality are subject to TIAs and public transport assessments.

National Land Transport Act stipulates that all persons, including the State and parastatal institutions, agencies and utilities, are bound by the provisions of Integrated Transport Plans, and

- no substantial change or intensification of land use on any property may be undertaken without the written consent of the relevant planning authority (municipality).
- developments on property within the area of the planning authority are subject to traffic impact assessments and public transport assessments as prescribed by the Minister
- where new or upgraded transport infrastructure or services are suggested in such assessments, the costs thereof must be paid by the planning authority, unless it has agreed with a developer or other person to pay those costs; and
- no action may be taken that would have the result of substantially decreasing the quantity or availability of land transport infrastructure or services, unless the owner of the land on which the infrastructure is situated, or the holder of the relevant operating

licence, as the case may be, has notified the relevant planning authority in writing not less than 30 days before the action is taken.

- The planning authority must, within 90 days —
  - approve or refuse an application for a change or intensification in land use or development proposal submitted; and
  - submit its written decision contemplated in paragraph (i) and any objections with respect to such application, including directions or conditions for compliance with the integrated transport plan, to such authority vested with responsibility for considering the application.

Based on the worst-case scenario it is expected that the proposed development will generate a total of 1225 & 1018 weekday AM & PM peak hour trips respectively.

Public Transport

- Study findings show that there is existing public transport along N11 Road, which is close to the development. There is no formal existing public transportation facility available for use within 1.0 km of the development site area.
- The TIA findings propose a bus layby or drop-off area to allow safe manoeuvre of the public transport vehicles on N11 Road close to the N11 & OR Tambo Road (north) intersection. This can be done by widening the N11 Road to provide enough space to park public transport vehicles and enable safe manoeuvre i.e., 180m (length) x 4.7m (width) size staggered on each side of the N11 Road.
- The road geometric designs should make provision as shown in the TIA report at the very minimum where applicable:
- 2.0m paved walkways for residential collector road linking to N11 Road.
- Bus/Taxi layby as specified
- Pedestrian crossings at school sites
- Drop-off points at school sites

Traffic Impact

- Traffic generated or attracted by the proposed Spitskop Township establishment has significant impact on the level of service on the N11 & OR Tambo (north) Road intersection (J1). Therefore, there is need for road geometric upgrades. The figure below shows an upgrading of the existing priority controlled into a signal-controlled intersection to meet the traffic volume demand in the design year 2030.

- The latent rights developments close to the proposed Spitskop Township establishment were considered in this study. The local municipality was consulted, and it was confirmed that there are no known latent rights development in the proposed site area.

Recommendations

The TIA Report has assessed the proposed Spitskop Township establishment site, the existing roads infrastructure and future traffic generation. The development is supported from a traffic engineering perspective provided that the development plans stated in the TIA Report are followed.

7.5.3 Ecological Assessment

Although the DFFE screening tool report classifies the site as having high faunal and medium floral sensitivity, the on site assessment revealed that the site is of sensitivity for both themes are low. Majority of the site has undergone land transformation due to illegal dumping, vegetation disturbance and alien invasion.

No other alternative sites were identified on the affected property(ies) for the development. The current study site is referred to as the preferred site. Some limited sensitive features occur on the site such as the watercourse. The size of the site makes provision for the exclusion of any sensitive environmental features that may arise through the Environmental Impact Assessment process to enable the appropriate allocation for township establishment within the site.

It is the opinion of the specialist that this application be considered, provided that all recommendations and mitigations are strictly adhered to

7.5.4 Floodline study

Contours / survey

Topographical information was obtained from the survey undertaken by ET Bikitsha Land Surveyors in November 2022. These data were converted to a 0.5m cell DEM in geotiff format for water surface computation and floodline delineation.

Control sections

There are no obvious control sections on either of the streams.

Boundary conditions (upstream and downstream)

The upstream and downstream boundary conditions were set at critical depth. After computation the downstream boundary conditions remained at critical, but the upstream water surface elevation on the streams was determined by the characteristics of the water surface profile.

Flow changes

Discharges were not adjusted through the reach of the East stream.

Slope changes

There is a marked flattening of the slope of the East stream at about Station 100 as shown in Figure 3a. The effect of this change in slope was accounted for in the computation by cross sections immediately upstream and downstream. Locations of the cross sections are shown in the floodline plan and as black squares on the riverbed ground line in Figure 3a.

There is a marked flattening then steepening of the slope of the West stream between Stations 400 and 600 as shown in Figure 3b of the floodline report. The effect of this change in slope was accounted for in the computation by cross sections immediately upstream and downstream. Locations of the cross sections are shown in the floodline plan and as black squares on the riverbed ground line in Figure 3b of the floodline report.

Cross Section Spacing

Cross section spacing was subjectively set depending on the uniformity of flow. In reaches where flow is expected to be highly non-uniform, for example immediately upstream or downstream of controls where the slope of the water surface is far from parallel to the bed, cross sections were closely spaced, sometimes only a few metres apart. In reaches where the flow is fairly uniform, with the slope of the water surface expected to be approximately the same as the bed slope, cross sections were set further apart.

Watercourse Model

The water surface profile was computed using HEC-RAS in Civil Geo's Geo HECRAS 2022 which is the current version of that software. Channel roughness is fairly uniform along the reach. The survey did not pick up any significant incised channels in either of the streams. Channel flow will be shallow and wide, therefore significantly affected by the nature of the valley bottom vegetation and a substantial proportion of flow will occur as shallow overbank flow, with significant momentum transfer between the channel and overbank flow contributing to the resistance. Manning's n values were set at 0.045 in the channel and 0.055 for the overbank flow. Cross section locations were determined iteratively. Initially sections were cut by visual interpretation at all potential controls and at intervals between these controls. Sections were set closely in the immediate vicinity of the control and more widely spaced where flow was expected to be uniform. Preliminary floodlines were plotted based on the results of this

initial computation and additional sections added to the model where these preliminary floodlines showed significant changes in the width of the floodplain.

7.5.5 Bulk Services Report

With the Water and Sanitation systems' status quo, developing Remainder of Portion 44 of the Farm Spitskop 276-IS is not feasible nor sustainable. Varioucatalytic projects have to be undertaken to ensure sustainable development should the municipality so require.

Addition to 1,000 housing units to the Ermelo Waste Water Treatment Works which operates with 6 Ml/d capacity and current loading is 19 Ml/d will only lead to further pollution of the river systems. Similarly, the municipality's water supply systems are only producing 27 Ml/d of he required 36 Ml/d (at Summer Peaks).

However, going through various reports of the municipality, it is clear that the municipality is aware of such impediment, and has ideally earmarked R 240 m for sanitation upgrades and well as R 264 m for water services upgrade.

Recommendations:

- That the Proposed Township Establishment be carried through, but simultaneously services be upgraded to meet demand;
- That a Water Conservation and Water Demand Management Project be implemented urgent to enable the municipality to understand better impediments facing the municipality and deal with some of observed hindrances;
- That total minimum amount of R 350m be sought immediate for the above implementation;

7.5.6 Geotechnical Investigation

Luande Geosciences Geotechnical Division was approached and appointed by Mintirho Management Consulting Joint Venture to conduct a full Geotechnical Investigation Report and feasibility desk study for the construction of the New Township Development. project near Spitskop on behalf of the Msukaligwa Municipality and DBSA

The proposed development of township extension is considered feasible as no catastrophic geological flaws exist and if the appropriate foundation design and. As such for planning and construction of the proposed development, the recommendation given above should be strictly adhered to. These amounts to no more than sound building practice appropriate Geotechnical constraints associated with the onsite subsoil conditions.it is advisable to include provision for regular supervision geological/Geotechnical Engineering professional during Development.

i. The study area is suitable for the construction of the Proposed development

ii. The area investigated is underlain by transported soils (Alluvium, Hillwash and Fill) and residual soils (sandstone, ferricrete and shale) derived from sedimentary bedrock.

iii. Excavation on site is likely to classify as “medium” to depths of between 0.9m and 2.5m.

iv. Groundwater seepage was observed in some of the test pits, which were excavated up to a 3.0m The site class designation according to the building regulations is R and S,

v. This investigation is aimed at providing the engineers with an indication of the prevailing engineering geological conditions in the study area.

vi. The investigation was planned as a feasibility level study to establish the suitability of the site for the proposed development.

vii. While every effort has been made during the fieldwork phase of this investigation to identify the various soil horizons, their problems and distribution, it is impossible to guarantee that isolated zones of varying material have not been missed.

viii. Test pits were backfilled after the field investigation but were not re-compacted and some test pit positions may occur within the footprints of proposed structures.

8. ENVIRONMENTAL STATEMENT

8.1 Summary of key findings

Short term environmental impacts of the project during the construction phase include increased traffic, dust and noise. There is a potential for increased traffic volumes, risk of fire hazards, safety, noise and groundwater and storm water contamination during operational phase.

The socio-economic impacts have been identified as job opportunities during construction and operation phases. The development and operation of the proposed township establishment will have an initial favourable impact as there is a need for more township establishment to accommodate the growing population in the area. In order to mitigate the potential noise and visual nuisance on adjacent residential areas, proper siting and design of the infrastructure within the site is required.

It is expected that the proposed development requires bulk services such as portable water, sewer, electricity and water. It is important that these bulk services that are constructed in full capacity in order to be able to support the needs of the people that is expected in the township. Waste management must be the responsibility of the Msukaligwa Local Municipality and as such, the municipality must ensure the adequacy of such services.

The project is expected to have permanent visual impact as there is going to be permanent structures and removal of trees. Residents to be encouraged to keep the township clean. Illumination must be minimised by directing all lighting towards the ground and inwards away from the boundaries; avoid stark white fluorescent lighting; and avoid high wattage flood lights. Illumination of the buildings must take into account the possible distraction glare. Night-time light sources must be directed away from, conservation areas, naturally vegetated areas.

This project will offer tenure and asset security. Access to essential infrastructural services such as energy, potable water, sanitation, communications and access. This development will also result in enhanced social services access, human and social capital development, as well as many direct and indirect spin-off benefits, such as job creation, capacity building, rates for the municipality and the upgrading of supply of services.

The overall environmental and socio-economic impact associated with the proposed development is considered to be acceptable as they are required to improve livelihoods

8.2 Superimposed layout plan on sensitivity

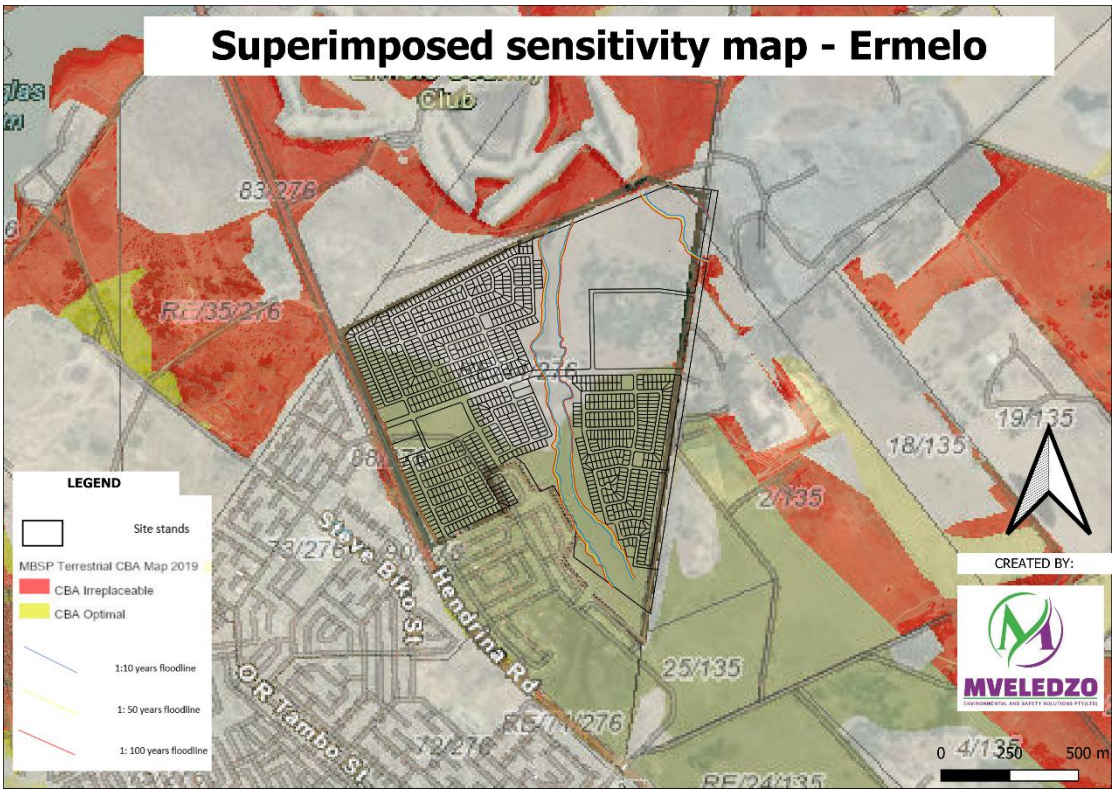

Figure 10: Superimposed layout plan

Figure 10 above shows that some stands will be demarcated an area classified as Other Natural areas and Heavily modified. The map was done in accordance to Mpumalanga Biodiversity Sector Plan (MBSP) (2019)

9. RECOMMENDATIONS

It is the opinion of the Environmental Assessment Practitioner that the impacts associated with the establishment of the proposed township establishment can be managed and mitigated to an acceptable level. In order to achieve minimal impacts on the environment. The following recommendation have been made:

- The mitigation proposed in this EIR and the EMPr should be strictly adhered to.
- Soil erosion must be minimised as far as possible.
- Job opportunities should be given to local first before outsourcing.
- All recommendations to be made by specialist should be adhered to.
- Due to establishment of the cemetery, ground water samples must be collected periodically to determine the groundwater quality. A geohydrological study must be undertaken prior the establishment of the cemetery.
- It is recommended that alternative storm water management methods be investigated to avoid directing of storm water flow towards the natural water course. Directing storm water directly into natural systems is not considered an environmentally ideal situation as incision, erosion and associated sedimentation could have a negative impact on natural watercourse system and associated drainage lines.
- Town establishment processes should be undertaken according to the Msukaligwa Local Municipality polices-laws, guidelines etc.

10. CONCLUSIONS AND WAY FORWARD

The Environmental Impact Assessment (EIA) process as well as the provision of the Environmental Management Programme (EMPr) for the establishment of a township has been undertaken in accordance with the EIA Regulation of 2014, as amended in terms of section 24(5) of the National Environmental Management Act (107 of 1998).

In order to protect the environment and ensure that the town establishment operates in an environmentally responsible manner, there are a number of significant pieces of environmental legislation that have been taken into account during this study as well as the mitigatory measures that should be implemented to ensure conservation and sustainable utilisation of resources thus protecting the environment. The conclusions of this EIR and EMPr are as result of a comprehensive study.

This EIR and EMPr provide an assessment of both the benefits and potential negative impacts anticipated as a result of the project. It further provides a description of the affected environment and alternative proposed project. In order to achieve appropriate environmental management standards and ensure that findings of the environmental studies are implemented through practical measures the EMPr must be adhered to ensure compliance with environmental specifications and management measures.

The EAP is of the view that competent authority should authorise the establishment of a township with effective implementation of the mitigation measures and EMPr proposed in this EIA.