

Environmental Management Programme (EMPR)

Proposed Development of Thabazimbi Extension 75
Residential Township on Portion 129 of farm
Doornhoek 318-KQ, Thabazimbi Local Municipality,
Waterberg District, Limpopo Province

LEDET Ref. no. Pending

Project Applicant:



Bertie Joubert
PROPERTIES / EIENDOMME

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Prepared by:



Independent Environmental Assessment Practitioner

Report date: 29 August 2022

ENVIRONMENTAL MANAGEMENT PROGRAMME

This Environmental Management Programme has been prepared for the application for environmental authorisation for the Proposed Development of a Residential Township to be known as Thabazimbi Extension 75, Portion 129 of the farm Doornhoek 318-KQ, Thabazimbi Local Municipality, Waterberg District, Limpopo Province (LEDET Ref no. Pending)

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Naledzi is an independent environmental consultancy with no vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA).

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A team of qualified, experienced and professionally registered environmental scientists were assembled for this project and have compiled this document. Several specialist investigations were commissioned and have informed the EMPr.

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ENVIRONMENTAL MANAGEMENT PROGRAMME

1. INTRODUCTION AND PURPOSE OF DOCUMENT

Naledzi Environmental Consultants (Pty) Ltd was appointed by Bertie Joubert Eiendomme Lephalale CC to submit an Environmental Management Programme (EMPR) for the development of Thabazimbi Extension 75 Township to the Limpopo Department of Economic Development, Environment and Tourism (LEDET). The document is prepared as a requirement in terms of Regulation 19 (1)(a) and Appendix 4 of the Environmental Impact Assessment (EIA) Regulations of 2014 (as amended in 2017) promulgated under the National Environmental Management Act (Act 107 of 1998) (NEMA).

Regulation 19 states that where a Basic Assessment must be applied to an application the applicant must submit a Basic Assessment Report, inclusive of specialist reports and an EMPr, which has been subject to a public participation process of at least 30 days and which reflects the incorporation of comments received.

This EMPr document forms part of the Basic Assessment Report (BAR) compiled for the proposed township in pursuit of obtaining Environmental Authorisation (EA) in terms of the NEMA. Various potential environmental aspects and impacts have been identified and considered in the Basic Assessment Report. These impacts require proactive management, which is achieved through the implementation of an EMPr.

The EMPr is a guideline document that sets out what needs to be considered to mitigate identified potential impacts and describes how this could be achieved. It is therefore not a specification of exact methods. The document provides a basis for managing, mitigating and monitoring the environmental impacts associated with all phases of the development in terms of the NEMA.

The requirements/procedures are binding on BJE, who would ultimately be the holder of the EA after LEDET approves the BAR and EMPr.

This section of the report serves to prescribe measures to reduce, limit, eliminate or compensate for impacts, to acceptable/insignificant levels. The term 'mitigate' means to '*allay, moderate, palliate, temper, and intensify*'. In environmental terminology this term is used as follows:

- mitigation of a negative impact;
- to reduce the significance of an impact;
- mitigation/optimisation of a positive impact;

This EMPr is a working document; alterations can be made concerning management measures or the implementation of more stringent measures. If there are any changes to the EMPr, such will be submitted to LEDET for approval before measures are implemented in the development of the township. Advice on protocols for EMPR amendments are also discussed further in sections 5.3 and 12.3 of this document.

2. PROJECT LOCATION

The proposed development will be located on Portion 129 of the farm Doornhoek 318-KQ. The property is located within the jurisdiction of Thabazimbi Local Municipality in the Waterberg District of Limpopo Province along the D1485 Thabazimbi-Marakele Road next to and across from existing residential developments Zeldri Park (Thabazimbi Extension 32) and Akasia Park (Thabazimbi Extension 47). Refer to **Figure 1** overleaf.

3. DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

3.1 Details of EAP who prepared the EMPr

Naledzi Environmental Consultants (Pty) Ltd has been appointed by BJE to prepare the EMPr in terms of the NEMA EIA Regulations of 2014 (GNR. 326). A team of qualified, experienced and professionally registered environmental scientists from Naledzi were assembled for this project and have compiled this document. Several specialist investigations were commissioned and have informed the EMPr.

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3.2 Expertise of the EAP who prepared the EMPr

Prof. Khanwelo Desmond Musetsho is a Senior Environmental Scientist and currently the Managing Director of Naledzi Environmental Consultants. He has over 19 years of experience in the field of Integrated Environmental Management, both on a project and management level. Mr Musetsho holds a Professional Bachelor of Environmental Management (Hons) Degree from the University of Venda, and a Master's Degree in Environmental Management from the University of Venda including a PhD in Environmental Management from the University of South Africa. He has extensive experience in Environmental Impact Assessments, development of management plans, development and implementation of Environmental Management Programmes for construction, and facilitation of public processes and workshops. Desmond is a Certified Environmental Assessment Practitioner (ICB-EAPSA) and an Environmental Scientist (SAIEES) as well as a SACNASP Registered Natural Scientist.

Marissa Botha is a Professional Environmental Scientist with the South African Council for Natural Scientific Professions (SACNASP) (registration number 117526) with 19 years of working experience in the environmental management industry. She has gained extensive experience in the field of Integrated Environmental Management, environmental impact assessments and public participation in multiple projects such as electrical power lines, residential developments, road and water infrastructure development/upgrades, filling stations, education facilities, commercial plants, radar masts, borrow pit, prospecting right applications, mining right applications, atmospheric emission license variations including postponement applications from the minimum emission standards compliance timeframes for coal-fired power stations. Her areas of skill include project management, field investigations, environmental scoping and impact assessments, basic assessments and environmental management programmes.

NEC has conducted Basic Assessment processes and Environmental Impact Assessment processes for multiple projects within the provinces of Gauteng, Mpumalanga, North West, Northern Cape and Limpopo.

Please refer to the attached CVs under Appendix G – Other information on the Draft BAR.

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3.3 Assumptions and Limitations

NEC has prepared this EMPR for the sole use of BJE and the appointed development consultants/contractors for this project, following generally accepted consulting practices and for the intended purposes, as stated in the agreement under which this work was prepared. The report is also intended for review by the relevant competent authorities. This report may not be relied upon by any other party without the explicit written agreement of BJE and NEC. No other warranty, expressed or implied, is made as to the professional advice included in this EMPr.

4. DETAILS OF APPLICANT (EA HOLDER)

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5. ENVIRONMENTAL MANAGEMENT PROGRAMME

5.1 Objective of the EMPr

The objective of this EMPR is:

- To identify a range of mitigation measures which could reduce and mitigate the potential impacts to minimal insignificant levels;
- Detail actions required to assist in alleviating the environmental impact derived from rail yard construction and operations;
- Where applicable, address concerns and complaints of I&APs concerning the construction activities;
- Institute a method of monitoring and auditing environmental management procedures during the identified project phases;
- Ensure that safety recommendations are implemented and fulfilled;

Table 1: Objective of EMPr

The EMPr intends to:
Avoiding impacts by not performing certain actions
Minimising impacts by limiting aspects of an action
Rectifying impacts through construction, restoration, etc of the affected environment
Compensating for impacts by providing substitute resources or environments
Minimising impacts by optimising processes , structural elements and other design features
Provide ongoing monitoring and management of environmental impacts of a project and documenting of any digressions /good performances.

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5.3 Amendment to the EMPr

The EMPr is a working document; the objectives and management action tables are to be reviewed and possibly modified whenever changes, such as planned activity change, modification to environmental objectives and targets, or additional unforeseen environmental impacts are identified and when relevant legal or other requirements are changed.

Regulation 35 of the NEMA EIA Regulations of 2014 (GNR 326) states that any amendments to the EMPr as a result of an audit or conditional requirements of the EA must be communicated in writing to the LEDET within the timeframes as stipulated in the Environmental Authorisation. LEDET must consider the environmental audit report and amended EMPr and approve such amended EMPr if it is satisfied that it sufficiently provides for avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity and that it has been subjected to an appropriate public participation process.

Regulation 36 of the NEMA EIA Regulations specifies where other amendments are required to the impact management actions of an EMPr, such amendments may immediately be effected by the holder and reflected in the next environmental audit report submitted as contemplated in the environmental authorisation and regulation 34. Where an amendment to the impact management outcomes of an EMPr is required before an audit is required in terms of the environmental authorisation, an EMPr may be amended on application by the holder of an environmental authorisation.

6. LEGISLATIVE REQUIREMENTS

6.1 Applicable Legislation

This EMPr has been prepared as a requirement in terms of Section 23 (1), (4) and Appendix 4 of the Environmental Impact Assessment (EIA) Regulations of 2014 (as amended April 2017) promulgated under the National Environmental Management Act (Act 107 of 1998) (NEMA).

Developers further need to comply with a range of other laws which regulate the impact on the environment. i.e.

LEGISLATION		
Legislation	Section	Related to
The Constitution of South Africa (Act 108 1996)	Section 24	Environmental Rights
National Environmental Management Act (107 of 1998) as amended in 2004 and 2008 and 2014	Chapter 5	Integrated Environmental Management
	Section 28	The developer has a general duty to care for the Section 28 environment and to institute such measures as may be needed to demonstrate such care.
	Chapter 7	Compliance enforcement and Protection
EIA Regulations of 2014 Government Notice R326	Regulation 19 (1)(a)	BAR must contain a Draft EMPr
	Appendix 4	Sets content of EMPr
National Environmental	Chapter 4	The developer has a general duty to

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Management: Waste Act (Act 59 of 2008) and its amendments		avoid the generating waste and if not avoided minimise and manage such accordingly
	Section 16	It is the responsibility of the person generating the waste to ensure that the waste is treated and disposed of in an environmentally sound manner
	Section 27	Provision of containers for waste management
National Environmental Management: Air Quality Act (39 of 2004)	Section 32	Control of dust
	Section 34	Control of noise
	Section 35	Control of odour
Conservation of Agricultural Resources Act (Act 43 of 1983)		Provides for control over the utilisation of the natural agricultural resources to promote the conservation of soil , water sources and vegetation and the combating of weeds and invader plants, and for matters connected therewith.
	Section 6	Implementation of control measures for alien and invasive plant species
	Section 19	Prevention of littering by employees and sub-contractors during construction and the maintenance phases of the proposed project.
National Water Act (36 of 1998)	Section 19	Prevention and remedying the effects of pollution
	Section 20	Control of emergency incidents
National Heritage Resources Act (25 of 1999) and regulations	Section 35	No person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site.
	Section 36	No person may, without a permit issued by the South African Heritage Resource Agency (SAHRA) or a provincial heritage resources authority destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority. "Grave" is widely defined in the Act to include the contents, headstone or other marker of such a place, and any other structure on or associated with such place.
	Section 38	This section provides for Heritage Impact Assessments (HIAs), which are not already covered under the ECA.

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		Where they are covered under the ECA the provincial heritage resources authorities must be notified of a proposed project and must be consulted during the HIA process. The Heritage Impact Assessment (HIA) will be approved by the authorising body of the provincial directorate of environmental affairs, which is required to take the provincial heritage resources authorities' comments into account before making a decision on the HIA.
National Environmental Management: Biodiversity Act (10 of 2004)		Provides for management and conservation of South Africa's biodiversity within the framework of the protection of species and ecosystems that warrant national protection and the sustainable use of indigenous biological resources. Most recent legislation pertaining to alien invasive plant species.
	Gazette No 78 of 2014	List of Alien Invasive Species
	Gazette No 37886 of 2014	Alien and Invasive Species Regulations
		Category 1 species: It calls for removal and/or control of alien invasive plant species. Category 2 species: No land user shall allow species to occur within 30m of a 1:50 year floodline or a river, stream, spring, natural channel, dam or wetland. Category 3 species: Prohibited from occurring within proximity of a watercourse.
National Road Traffic Act (No 93 of 1996)		Road safety
Advertising on Roads and Ribbon Development Act (Act 21 of 1940)		No building or structure of any kind shall be erected within a distance of 94.46 meters from the centre line of any public road.
	Section 11(8)(A)	Request application for consent from Controlling Authority to relax the building line near the provincial road.
National Dust Control Regulations (GNR. 827/ 2013)	Section 3	Set an acceptable standard for dust fall rate
Occupational Health and Safety		Deals with the prevention of

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Act (Act 85 of 1993)		occupational accidents and injuries
Hazardous Substances Act (Act 15 of 1973)		Provides for the definition, classification, use, operation, modification, disposal or dumping of a hazardous substance.
National Forest Act (84 of 1998)	GNR. 1935 of 2022 issued under Section 12	List of National Protected Tree Species
	Section 15 (1)	No person may cut, fell, and remove any listed protected tree species without a necessary permit from the Department of Agriculture Forestry and Fisheries.
Fire Services Act (Act 99 of 1956)		Provides for the promotion and support of fire safety, the fire suppression service and circumstances to achieve fire safety. Regulates local authorities in terms of fire services provision in incidents of fire.
Water Services Act (Act 108 of 1997)		Provides framework for provision of water supply and sanitation services to households/businesses in SA.

6.2 Applicable Permits

6.2.1 Consent Use in terms of the Spatial Planning Land Use Management Act

The development requires application in terms of Section 16(4)(a) of the Thabazimbi Land Use Management By-law, 2015 read together with the Spatial Planning and Land Use Management Act, 2013 for the establishment of a residential township.

The township establishment application for the proposed residential development was submitted to Thabazimbi Local Municipality (TLM) in 2020 by Urban Edge Town Planners. The TLM is awaiting the outcome of the environmental authorisation process before issuing consent.

6.2.2 Consent for Erection of Structures (Building Line Relaxation) Close to Provincial Road

According to the Title Deed restrictions of the property, no building or structure of any kind shall be erected within a distance of 94.46 meters from the center line of any public road. The township development will be developed approximately 15 meters from the D1485 Thabazimbi-Marakele Road in line with the existing abutting residential development, Zeldri Park.

Limpopo Department of Public Works, Roads and Infrastructure (DPWRI) must provide consent for the relaxation of the building line near the provincial road (D1485 Thabazimbi-Marakele Road) in terms of Section 9 (1) of the Advertising on Roads and Ribbon Development Act, (Act 21 of 1940).

Urban Edge Town Planners have applied for consent to DPWRI during the township establishment application process. The consent must be secured during the planning phase of the development.

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6.2.3 Heritage and Palaeontological Record of Decision

The National Heritage Resources Act (Act 25 of 1999) under Section 38 requires that any development that will change the character of the site (exceeding 5000m² in extent) including the rezoning of a site exceeding 10 000m² in extent must notify the heritage resources agency and provide details regarding the location, nature extent of the project. Section 35(4) of the Act also protects palaeontological sites.

The EAP conducted a site walkthrough on 21 June 2022 and no heritage or cultural resources were found. A specialist Archaeologist and Palaeontologist was contracted to verify the findings. Both a Phase 1 Desktop Heritage Impact Assessment and Desktop Palaeontological Study were undertaken for the project. No cultural, heritage or palaeontological resources were recorded. The site is of low significance. If any such resources are encountered during bulk earthworks, a heritage permit may be required. The EMPR does include protocols for finds that should be implemented by the developer if encountered onsite during the construction phase.

The South African Heritage Resources Agency has been notified of the project and provided with the desktop specialist studies and recommendations. The SAHRA is yet to provide their recommendation and record of decision on the project. It is anticipated that Chance finds recommendations would be prescribed by SAHRA.

6.2.4 Permits for Removal of National and Provincially Protected Trees

Section 15 (1) under the National Forest Act (Act No 84 of 1998) states that only under the license granted by the Minister to an applicant may a protect tree be cut, damaged or destroyed.

Nationally Protected Tree species which require licensing for removal have been included under GN. 1935 of 2022 Notice of List of Nationally Protected Tree Species under National Forest Act (Act No. 84 of 1998). Numerous nationally protected *Vachellia erioloba* (Camel Thorn), national tree number 168, have been recorded onsite.

Where possible large Camel Thorn trees will be incorporated into the layout design and or landscaping of the residential township. However some individual trees may potentially be prone for removal. Protected Tree Removal Permits must be obtained from the Department of Forestry, Fisheries and Environment (DFFE) Forestry Regulation and Support before its removal.

The tree permits need to be obtained before construction commences and are valid for 12 – 18 months.

7. PROPOSED ACTIVITY

Appendix 4 of GNR 326 requires that an EMPr must include:

- a) A detailed description of the aspects of the activity that are covered by the environmental management programme as identified by the project description;
- b) A map at an appropriate scale which superimposes the proposed activity, its structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers.

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7.1 Project Components

The project components include:

- 33 “Residential 1” erven with varying sizes (500m² and 700m²) for dwellings
- 1 “Special” erf for a Guard House/Access Control " of approximately 150m²;
- 1 “Private Road” erf for the internal road network with a way width of 5 metres within a 10m road reserve.
- Installation of internal services i.e. water, sewer, electrical and storm water management
- A pump station (i.e. submersible pump system) will be installed to pump the township sewage to the main gravity system.
- Construction of a side channel for storm water management to contribute to the road prism capacity.
- Construction of a side channel at the entrance of the development that connects to the storm water of the Medivet Road.
- Installation an electrical connection point to the existing Eskom TS 11KV line or T-off along Medivet Road.

Access: The Township will gain access from the Medivet Road, a public access servitude running parallel to the D 1485 Thabazimbi-Marakele Road, along the south easterly border of the property. Medivet Road intersects with the intersection of D1485. Please refer to Section 5 of this report for more details.

Water: The water demand will be 33 Kilo litres/day for both domestic and garden use. Water will be sourced from TLM and supplied from the Thabazimbi Reservoir from an existing 160mm uPVC pipe along the Medivet Road. The inferred static pressure head to the proposed township is 110m. The water reticulation network in the area is over pressurised and a Pressure Reducing Valve (PVR) is located at the Medivet road intersection to address this. The pressure at the PRV will be increased to increase water pressure to supply both existing (Akasia and Zelri Park) and the new residential development. TLM will execute the PRV adjustment.

Sewage: The average daily sewage outflow will be 24.75 Kilo litres/day and will drain towards the southeastern portion of the development via the new internal sewer system (i.e. 160mm uPVC pipes). The sewage will need to be pumped to be able to connect to the existing Gravity system. The discharge from the development will drain to the Thabazimbi Waste Water Treatment Works (Figure 2 below).

The new internal sewer system will be connected to the existing rising sewer line running parallel to Medivet Road. The existing sewer line along the access road to the South of the development uses a sewer pump to pump effluent westwards towards the existing gravity network. The proposed development’s sewer connection to the existing rising mains will also require a pump station operating in parallel to the existing station. A pump station (i.e. submersible pump system) will be installed by the applicant to operate in parallel with the existing pump station in order not to exceed the capacity of the rising mains.

Storm Water: The property drains in the south-easterly direction and will connect to the existing storm water system located on Medivet Road, discharging towards the Thabazimbi Airfield. The storm water will be controlled within the road reserve prism. The carrying capacity of the Medivet

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road reserve is 0.21 m³/s which is under capacity for major floods (1:50 year) and has to be combined with a side channel to contribute to the road prism capacity. The total major storm water capacity will thus be 0.500m³/s and accommodate the 1: 50-year flood.

The minor flood recurrence of the development will amount to 0.162m³/s (1: 2-year flood). The minor flood system will consist of surface run-off with a side channel at the entrance of the development that connects to the stormwater of Medivet Road.

Electrical: The electricity demand of 192 kVA will be sourced from Eskom through two possible connect points i.e. existing Eskom TS 11kV line (supplied by the Eskom Thabazimbi Combined Substation) located next to the Thabazimbi-Marakele Road or a T-off along Medivet Road.

7.2 Project Method Statement

There are three phases relevant to the proposed project, namely;

- Planning Phase (secure all necessary permits and agreements)
- Construction Phase
- Operation Phase

The total construction time will be 24 months. Construction is estimated to start between 2023 – 2024 and should conclude by 2026 therefore provisionally assumed to start operating in 2026-2027.

7.2.1 Planning Phase

The planning phase will include:

- Securing the township establishment consent from Thabazimbi Local Municipality (TLM)
- Securing and signing the finalised Services Agreement Report with TLM
- Securing consent from DPWRI for the relaxation of buildings lines to the D1485 provincial road;
- Marking of the Camel Thorn Trees to remain conserved within the township layout (red spray paint/highly visible flags) and those that are prone for removal (if any) (yellow spray paint/highly visible flags);
- Permits for Removal of Protected Trees in terms of Section 15(1) of the National Forest Act must be submitted and obtained from DFFE: Forestry Regulation and Support.
- Give Limpopo Department of Economic Development, Environment and Tourism (LEDET) fourteen (14) days written notice that the activity's construction phase will commence. Commencement includes site preparation.
- Give the landowners along Medivet Road notice of the commencement of construction when the notice is served to LEDET.

7.2.2 Construction Phase

The construction period will be 24 months and include:

- Site demarcation: fencing of construction site, flagging protected trees
- Site establishment: construction laydown area and storage area
- Site preparation: gradual removal of vegetation with a bulldozer, topsoil and levelling of terrain, excavations;

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- Installation of services (i.e. internal street network, water, sewer system, electricity and boundary wall)
- Construction of internal road network
- Gradual construction of 33 residential units
- Rehabilitation, landscaping of vegetation in township.

There will be no construction camp, local labour will be employed. Construction staff will commute to the construction site on a daily basis.

7.2.3 Operational Phase

The units would be occupied by owners or tenants and the township will be managed by a Body corporate/Home Owners Association managing the complex maintenance, security and waste disposal.

Decommissioning is not foreseen in the near future since residential units become assets traded in the real estate market for decades. Any decommissioning activities in the future will be subject to a separate Basic Assessment process in terms of the NEMA EIA Regulations.

7.2.3 Validity Period of Environmental Authorisation

6 YEARS. This period will cover the planning and construction phase of the township.

7.2.4 Composite Map

The footprint area of the proposed township is located on degraded Bushveld vegetation which is of low ecological and biodiversity importance. The only sensitive feature identified is the nationally protected tree species *Vachellia erioloba* (Camel Thorn) located on the property. The Camel Thorn trees will be incorporated in to the township layout and landscape design. These individual trees have been plotted using a Garmin GPS device and have been superimposed on Google Earth Satellite imagery to be conserved as far possible in the township layout.

There are no wetlands within 500m of the site, sensitive habitats or drainage lines within 100m on the property therefore no buffer zones or no-go areas are applicable.

Refer to Figure 2 for the township layout plan and Figure 3 Composite map which superimposes the environmental sensitivities (individual Camel Thorn trees) related to the project site.



Figure 3: Composite Map of the project site showing the location of *Vachellia erioloba* / Camel Thorn Trees to be incorporated in the township layout.

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8. ENVIRONMENTAL MANAGEMENT, ROLES AND RESPONSIBILITIES

Appendix 4 of GN R 326 requires that an environmental management programme must include an indication of the persons who will be responsible for the implementation of the impact management actions. Figure 4 provides a basic reporting and communication structure for the implementation of the EMPr. The roles of each of the parties are tailed in the sections below under Section 7.1.

To effectively implement the EMPr, it is necessary to identify and define the responsibilities and authority of the various persons and organisations that will be involved in the project. The EMPr will be an item of the monthly project meetings in order to provide input with respect to compliance with the EMPr.

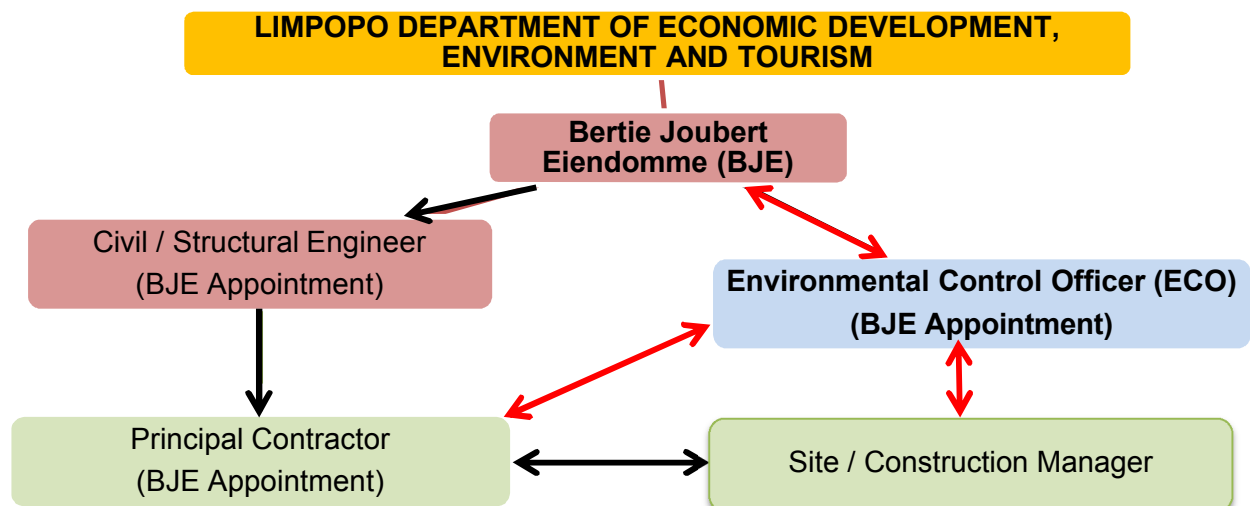


Figure 4: Roles, responsibilities, organizational and reporting

The BJE (developer) will take ultimately project responsibility and appoint a Principal Contractor to undertake the construction of the township. The Principle Contractor will appoint a Site / Construction Manager. The practical implementation of the EMPr is therefore the responsibility of the Site / Construction Manager (S/CM) who will monitor the implementation of the EMPr on a day-to-day basis. Should these guidelines require alteration or additions during the construction or operation of the proposed township this shall be done at the discretion of the responsible S/CM. The S/CM shall ensure that any alterations are communicated, explained to and discussed with all affected parties. It is the responsibility of BJE to ensure that the S/CM, employees and sub-contractors are capable of complying with all the statutory requirements which must be met in order to construct the proposed township, which includes the adherence and implementation of the EMPr.

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8.1 Resource Allocation

To ensure that the EMPr for the construction and operational phase of the township is implemented, the following staff resource shall be made available:

- An Environmental Control Officer (ECO) was appointed by BJE to assume responsibility for monitoring compliance with the management measures contained in this document.
 - The ECO is still to be appointed. Contracting of an ECO will be undertaken post-issuance of the EA once construction is scheduled. An independent Environmental Control Officer must be appointed.
- The Site/Construction Manager appointed by the Contractor for the construction period is to assume responsibility for implementing the management measures contained in this document.

Table 2 Roles and Responsibilities in terms of the implementation of the EMPr onsite

ROLES	RESPONSIBILITIES
BJE (EA Holder)	<ul style="list-style-type: none"> ▪ Ensure that the Principal Contractor and S/CM are capable of complying with all the statutory requirements which must be met to plan, and construct the proposed township, which includes the adherence and implementation of the EMPr. ▪ The operational aspects of the project will be managed by the selected Body Corporate who would be responsible to adhere to the mitigations set out in the EMPr for the operation phase.
Principal Contractor	<ul style="list-style-type: none"> ▪ Comply with the conditions and management measures set out in the EMPr.
Site /Construction Manager (S/CM)	<ul style="list-style-type: none"> ▪ Practical implementation of the EMPr on a daily basis ▪ Requires environmental management experience in the field and experience on construction projects. ▪ Establish routine management, liaison and reporting systems and prepare management reports. ▪ Monitor the environmental aspects and advise the Contractor of actions required. ▪ Manage the Contractor's methods of working concerning the potential environmental impacts and recommend safeguards. ▪ Undertake site inspections on a day-to-day basis and notify the Contractor and Environmental Control Officer of any problems. ▪ Liaise in collaboration with the Environmental Control Officer with the adjacent and nearby landowners and act as a channel for their concerns. ▪ Maintain all records with the EMPr requirements onsite. Such records are to be made available to ECO during the three (3) month site visit and audit. ▪ Records must be systematically kept to ensure ease of reference.
Environmental Control Officer (ECO)	<ul style="list-style-type: none"> ▪ Responsible to monitor compliance with the EMPr. ▪ An independent person appointed by BJE ▪ Must report to BJE (incl. Principal Contractor, S/CM) and LEDET. ▪ Must be suitably qualified in the environmental sciences and management and have adequate construction site experience of monitoring and auditing the implementation of an EMPr. ▪ Has authority to stop any works if, in his/her opinion, there is/may be a serious threat to/impact on the environment caused by the contractor's actions/construction phase activities.

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	<ul style="list-style-type: none"> ▪ The ECO is to inform the Contractor of the reasons for the work stoppage within 24 hours. ▪ Advise the Contractors on environmental issues during the implementation of the EMPr. ▪ Identify problem areas and provide action plans to avoid further environmental damage. ▪ Before construction starts the ECO needs to do a paper audit to ensure that all the necessary permits and or consents have been secured for the project and LEDET served with a notice to commence construction. ▪ The ECO must conduct an initial site visit during site establishment taking photographic proof of the site and ensure the protected trees are marked and provide environmental awareness training; ▪ The ECO is to conduct another site visit three (3) months into construction to monitor and audit the compliance with the EMPr and is to submit one (1) audit report to LEDET after the site visit. The report is to contain the activities and findings of the initial site inspection and three (3) month site inspection. ▪ One (1) post-construction site visit and close-out report to LEDET. ▪ Ensure that any significant environmental incidents are reported to BJE and LEDET. ▪ Recommend alterations to the EMPr as necessary.
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9. ASPECTS / IMPACTS ASSOCIATED WITH THE DEVELOPMENT

A summary of the identified impacts including significance pre and post mitigation is provided below in **Table 3**.

Table 3: Summary of the significance of impacts pre-and post-mitigation

Impact	Significance (pre-mitigation)	Significance (post mitigation)
Planning Phase		
Loss of protected tree species	Moderate (-)	Low (-)
Improper storm water management system /design	Moderate (-)	Low (-)
Impact on water services and availability to existing residential developments	Moderate (-)	Low (-)
Impact on existing sewage infrastructure	Moderate (-)	Low (-)
Construction Phase		
Disturbance of surface geology for township foundations	Low (-)	Low (-)
Clearing of vegetation will leave the site exposed and will lead to increased surface run-off and erosion.	Moderate (-)	Low (-)
Loss of soil from excavations due to erosion	Low (-)	Low (-)
Destruction and loss of 2.4 ha of degraded bushveld (low) and fragmentation of vegetation communities in adjacent natural areas (moderate).	Moderate (-) to Low (-)	Low (-)
Loss of limited protected tree species	Moderate (-)	Low (-)
Spread of alien invasive species	Moderate (-)	Low (-)

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Impact	Significance (pre-mitigation)	Significance (post mitigation)
Loss of faunal habitat and disturbance of fauna	Low (-)	Low (-)
Potential leaking equipment and hydrological spillages may pollute the groundwater.	Moderate (-)	Low (-)
Altering the surface water flows and increased storm water runoff due to increased hardened surfaces.	Moderate (-)	Low (-)
Dust emissions from construction activities	Moderate (-)	Low (-)
Increased noise levels from construction activities	Moderate (-)	Low (-)
Accidental unearthing of any cultural or heritage resources	Low (-)	Low (-)
Loss of fossil heritage (destroy of permanent seal in of fossils below the surface)	Moderate (-)	Low (-)
Site clearing may be visually intrusive to abutting properties.	Low (-)	Low (-)
Construction lights from the laydown area/construction storage area could be intrusive to abutting properties at night.	Low (-)	Very Low (-)
Increased traffic using the D1485 Thabazimbi-Marakele Intersection and further deterioration of the Medivet Road condition (if not upgraded by TLM by the time of construction).	Moderate (-)	Low (-)
Waste impact (management)	Low (-)	Low (-)
Increased construction workers/movement in the local area may pose a security risk.	Low (-)	Low (-)
Create 50 construction jobs	Moderate (+)	Not required
Capital injection in the local economy by purchasing building material	Moderate (+)	Not required
Nuisance impacts resultant from construction activities may impact on abutting residential development and small holdings	Moderate (-)	Low (-)
Operational Phase		
Sewage leakages from pipelines may occur and impact on groundwater quality	Low (-)	Low (-)
The cumulative visual effect of gradual transformation of the direct area from small holding to medium density residential. Not negative per se due to existing similar developments in the direct area.	Low (-)	Low (-)
Increased traffic at the D1485 Thabazimbi-Marakele Road intersection	Low (-)	No road improvements required
Increased traffic on Medivet Road results in further road deterioration (if not upgraded by TLM once the township is in operation)	Moderate (-)	Low (-)
Generation of domestic, garden waste and sewage disposal by development.	Moderate (-)	Low (-)

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Impact	Significance (pre-mitigation)	Significance (post mitigation)
Create 15 – 25 permanent	Moderate (+)	No mitigation is required. Positive impact
Provision of housing	High (+)	
Increased revenue and taxes to local authority	Moderate (+)	

Several negative impacts of moderate and low significance ratings have been identified for the planning, construction and operational phase of the project of which the majority can be reduced/controlled or remedied to a low significance rating ultimately minor. No impacts of high negative significance ratings have been identified for the project given the degraded nature of the site and activity type proposed. Five (5) positive social and economic impacts have been identified for the project during construction and operation i.e.

- Creation of jobs during construction (50) and operation (15-25)
- Capital injection in the local economy through the purchase of building materials
- Provision of housing in a market with a significant shortage of houses available for rent and to buy in the town near to amenities and schools is rated as a high positive impact;
- Increased revenue and taxed to the local authority

10. ENVIRONMENTAL IMPACT MANAGEMENT MEASURES, IDENTIFIED FOR THE PROJECT

The following table forms the basis of this EMPr for planning, construction and operational phases of the proposed township. The EMPr should guide the Principal Contractor and it should be implemented as an auditing list during the planning and construction phase. Daily compliance with the EMPr should be monitored by the contractor appointed site / construction manager. The Environmental Control Officer should conduct two compliance audits (i.e. site establishment, after three months of construction) and once after completion of the project.

Appendix 4 of GNR. 326 states that an environmental management programme must include:

- (d). An description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including—
- i. planning and design
 - ii. pre-construction activities
 - iii. construction activities
 - iv. rehabilitation of the environment after construction and where applicable post closure; and
 - v. where relevant, operation activities;

Section 10.1 – 10.3 (Table 4, 5 and 6) describes the affected aspect, potential impacts identified for the planning, construction, operational phases of the project and provide the required management targets, actions and outcomes required to manage the expected risks and achieve the relevant standards.

10.1 Planning Phase

10.2 Construction Phase

10.3 Operational Phase

10.1 PLANNING PHASE RECOMMENDED MANAGEMENT MEASURES

Table 4: Planning Phase Prescribed Management Measures					
PLANNING PHASE – ENVIRONMENTAL MANAGEMENT MEASURES					
Aspect	Issue / Potential impact	Mitigation required	Standard Achieved	Responsibility	Frequency
Authorisations, permits and license	Compliance with relevant sets of environmental legislation, municipal bylaws, land use management plans	<ul style="list-style-type: none"> ▪ All necessary consents, authorisations and permits and must be obtained by the Developer before construction commences. <ul style="list-style-type: none"> ○ Township establishment consent from TLM ○ EA from LEDET ○ Protected Tree Permits from DFFE Forestry Regulation (if necessary) ○ Consent from Dept. Public Works, Roads and Infrastructure 	TLM Land Use Management Bylaws, SPLUMA. NEMA (Section 24) EIA Regulations of NFA (Section 15(1)) Advertising on Roads and Ribbon Development Act 21 of 1940 (Section 9(1)).	Developer to obtain. ECO to audit if all consents, authorisations and permits in place.	Once-off Once-off before construction starts.
Appointment of Principal Contractor	Financial provision to ensure compliance with the EMPR daily	The EMPr must form part of the contractual agreements with the Principal Contractor for implementation of the proposed construction of the township. This will allow the contractor to make financial provision for compliance to the EMPr.	Adequate financial provision to implement EMPR	Developer	Once-off
Appointment of ECO	Monitor and audit compliance with EMPR and submission of reporting to LEDET	<ul style="list-style-type: none"> • The developer (BJE) must appoint, at their cost, an independent ECO to audit compliance with the EMPR. • The appointed ECO must be given, in writing, at least fourteen (14) days' notice before construction commences. • The ECO must conduct an initial paper audit to ensure that all the necessary consents, authorisations and permits are in place. • The ECO must undertake the following monitoring and auditing: <ul style="list-style-type: none"> ○ Conduct an initial site inspection during site establishment ○ Conduct another site inspection three months into construction including the submission of one (1) full Environmental Audit Report to LEDET incorporating the results of both audits i.e. site establishment site visit and site inspection three months into construction; ○ One (1) post-construction site visit and close-out report to LEDET ○ The Audit Reports must score the Principal Contractor/Developer's compliance against the EMPr as a percentage and make recommendations if any amendments are required to the EMPR targets, management measures or outcomes. 	Compliance with the project EA conditions issued by LEDET stipulates the requirement for auditing and frequency by an independent ECO.	Developer	Once-off
Layout and Design of township	Loss of protected tree species i.e. <i>Vachellia erioloba</i> (Camel Thorn)	<ul style="list-style-type: none"> • Where possible large Camel Thorn tree individuals should be incorporated into the layout design and or landscaping of the residential township. • Before site establishment Camel Thorn trees must be marked with highly visible flags onsite indicating which trees remain and which will be removed (if any). • Based on the tree count Permits for Removal of Protected Trees in terms of Section 15(1) of the National Forest Act must be submitted and obtained from DFFE: Forestry Regulation and Support, Waterberg District Official. 	Section 15 (1) National Forest Act, (Act 84 of 1998)	Developer	Once-off

ENVIRONMENTAL MANAGEMENT PROGRAMME

Table 4: Planning Phase Prescribed Management Measures

PLANNING PHASE – ENVIRONMENTAL MANAGEMENT MEASURES					
Aspect	Issue / Potential impact	Mitigation required	Standard Achieved	Responsibility	Frequency
Flora	Control of alien invasive species and encroachment onto adjacent natural areas/small holding.	<ul style="list-style-type: none"> An Alien Vegetation Management Plan must be compiled to implement during construction and operation of the township to reduce establishment and spread of undesirable alien plant species to the adjacent small holding. 	GNR 37886 of 2014 Alien and Invasive Species Regulations (Category 1)	Developer	Once
Municipal services	Storm water management and erosion	<ul style="list-style-type: none"> The Stormwater Management Plan developed by the qualified engineer must be implemented during the construction and operational phase of the township.i.e. <ul style="list-style-type: none"> The internal storm water system must be designed as specified in the Civil Engineering Services Report. The storm water must be controlled within the road reserve prism. A side channel will be constructed to contribute to the road prism capacity to cater for a 1:50-year flood. Minor flood recurrences (1: 2-year flood) must be controlled with a side channel at the entrance of the development that connects to the storm water of Medivet Road The above must be implemented to reduce property damage and prevent erosion (land and watercourse). 	Design according to UTG4 – Guidelines for Urban Stormwater Management; Comply with TLM storm water design requirements.	Developer Engineer	Once-off
	Water services	<ul style="list-style-type: none"> Arrangements/commitment from TLM must be sought through a services agreement to increase the pressure at the Pressure Reducing Valve (PRV) located at the Medivet Road intersection to ensure sufficient water pressure to supply both existing and the proposed Thabazimbi Extension 75 residential development. TLM must execute the PRV adjustment. Water network system to be designed according to DWS guidelines. 	DWS “Guidelines for the Design and Construction of Water and Sanitation Systems,” 2016.	Developer TLM	Once-off
	Sewage infrastructure	<ul style="list-style-type: none"> The township discharge must be drained to the Thabazimbi Waste Water Treatment Works by pumping it from the new township to existing Gravity system. A pump station (i.e. submersible pump system) is to be installed by the applicant to operate in parallel with the existing pump station in order not to exceed the capacity of the rising mains. 	Sewage system designed according to Civil Engineering Report recommendations. Comply with TLM sewer design requirements.	Developer	Once-off

10.2 CONSTRUCTION PHASE RECOMMENDED MANAGEMENT MEASURES

Table 5: Construction Phase Prescribed Management Measures					
CONSTRUCTION PHASE – ENVIRONMENTAL MANAGEMENT MEASURES					
Aspect	Issue/ Potential Impact	Mitigation required	Standard Achieved	Responsibility	Frequency
Demarcation of the site	Loss of topsoil Erosion	<ul style="list-style-type: none"> Identify and clearly mark the extent of the construction site and associated works area as per the approved site plan. Any excavations posing a risk to human/animal safety must be demarcated. The construction footprint must be kept to a minimum and no construction materials will be allowed outside the demarcated project site. 	Site demarcated as per the approved site plan (composite map)	Contractor S/CM ECO audit	Once-off demarcation (during site establishment)
Site preparation Clearing of 2.4 ha degraded Bushveld vegetation and indigenous trees	Loss of habitat and fragmentation of vegetation communities in adjacent natural areas	<ul style="list-style-type: none"> Areas to be developed must be specifically demarcated so that only the demarcated areas are impacted on. Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should not be fragmented and disturbed further. Areas denuded during construction that are not within the development footprint need to be re-vegetated within indigenous vegetation to prevent soil erosion during flood events and strong winds and to support adjacent habitats. This will also reduce the likelihood of alien invasive plants. All vehicles and personnel must make use of existing roads and walking paths. Laydown areas should be restricted to low sensitivity areas. 	Biodiversity and alien invasive management in accordance with the NEM: Biodiversity Act of 2004, GN 78 of 2014 and GN 37886 of 2014, GNR 598 of 2014.	Contractor S/CM ECO to be present during site establishment and marking of trees.	Throughout construction.
	Loss of protected tree species i.e. Camel Thorn	<ul style="list-style-type: none"> The sensitivity and importance of the species must be part of the environmental awareness program. High visibility flags (markers) must be placed near the protected trees i.e. Camel Thorn (not identified for removal) to avoid any damage or destruction to the trees by construction machinery. Should any of the smaller Camel Thorn trees require a destruction or removal permit from DFFE Forestry Regulations, no destruction may take place until the necessary permits are in place. 	Camel Thorn conserved in township layout. Permits must be obtained from DFFE for destruction of Camel Thorn as per Section 15 (1) of the NFA. (if required).	Developer Contractor S / CM	Through construction. Once off application for permits valid for 12-18 months.
	Loss of faunal habitat and disturbance of fauna	<ul style="list-style-type: none"> A qualified Environmental Control Officer must be onsite when clearing begins. The area must be walked through to ensure that no faunal species remain in the habitat and get killed. Any holes or excavations must be done in a progressive manner to prevent trapping. The areas to be developed must be demarcated to prevent the movement of construction staff/equipment into surrounding environments. Signs must be put up to enforce this. 	No faunal species killed during site clearance and adjacent faunal habitats remain intact.	Contractor Qualified ECO	Once off
Site preparation, Control of Alien Invasive Plant Species	Vegetation clearance has the potential to result in spread of alien invasive species to abutting property or natural areas resulting in altered habitat integrity.	<ul style="list-style-type: none"> The implementation of an Alien Invasive Plant management plan is important, especially because of the invasive species identified on site, which if left unchecked, will continue to grow and spread resulting in further deterioration of adjacent natural areas. The footprint area of the construction site should be kept to a minimum and clearly demarcated to avoid unnecessary disturbances to adjacent areas. Spread of alien invasive species to adjacent areas will reduce its grazing capacity. 	Control of alien invasive plant species in line with the NEM: BA 2014 Alien and Invasive Species Regulations also referring to Gazette No. 78 of 2014.	Contractor S/CM	Throughout construction.

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Table 5: Construction Phase Prescribed Management Measures

CONSTRUCTION PHASE – ENVIRONMENTAL MANAGEMENT MEASURES					
Aspect	Issue/ Potential Impact	Mitigation required	Standard Achieved	Responsibility	Frequency
Site preparation Material Stockpiling	Topsoil stripping during site clearance and earthworks	<ul style="list-style-type: none"> • Topsoil which is excavated or removed during earthworks must be stockpiled on site for use during rehabilitation. • Stockpiles must be protected from wind and rain and monitored for erosion. • Weeds must be eradicated from topsoil before spoiling. • Stockpiles must not be allowed to become contaminated with oil, diesel, petrol or waste which may prevent the later regrowth of indigenous vegetation (for rehabilitation purposes). 	<p>No visible erosion of stockpiles or weeds.</p> <p>Successful re-vegetation of denuded areas (where required).</p>	Contractor S/CM	Implement topsoil management through construction period.
Construction Vehicles / Equipment	Potential leaking equipment and hydrocarbon spillages may cause groundwater pollution	<ul style="list-style-type: none"> ▪ Leaking equipment and vehicles must be repaired immediately or taken off-site to facilitate repair. ▪ Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment not in use. ▪ Avoid any servicing of vehicles onsite. ▪ The contractor shall have an emergency spill kit that must always be complete and available onsite. ▪ Clean small oil or fuel spills with an approved absorbent material (e.g. Sawdust, “Drizit” or “Spill-sorb”) ▪ Immediately clean any accidental oil or fuel spillages or leakages; ▪ Carefully control all on-site operations that involve the use of cement and concrete. ▪ Contain any diesel storage tanks/machinery spills (e.g. accidental spills of hydrocarbons, oils, and diesel) in such a way as to prevent them from leaking into the environment. 	<p>Compliance with Section 19, 20 of NWA 36 of 1998.</p> <p>No visible fuel leakages from vehicles and equipment in designated parking and works areas. Drip trays under construction vehicles or machinery with visible leaks.</p>	Contractor S/CM	When event occurs, through construction phase.
Storm water and Erosion Control	Loss of soil due to erosion. Exposed soils lead to increased storm water runoff and erosion. Increased storm water runoff due to increased hardened surfaces	<ul style="list-style-type: none"> • Gradual removal of vegetation for the township components is recommended to reduce the risk of soil erosion. • Proper storm water management measures must be in place on the construction site. • Protected all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction area. 	Compliance with Section 19, 20 of NWA 36 of 1998 and Conservation of Agricultural Resources Act (Act 43 of 1983).	Contractor S/CM	Throughout construction.
Materials Handling	Concrete preparation and handling will result in soil contamination	<ul style="list-style-type: none"> • Use plastic trays or liners when mixing cement / concrete. Do not mix cement directly on the ground. • Limit cement and concrete mixing to single sites where possible. • Scrape waste concrete and cement off the side of preparation areas regularly and remove any visible remains of excess cement and concrete after completion of works. Dispose of waste concrete and cement in an approved manner (if dry = construction rubble; if wet or dry cement powder treats as hazardous waste). 	No soil contamination from cement.	Contractor S/CM	In the event of concrete handling and mixing

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Table 5: Construction Phase Prescribed Management Measures

CONSTRUCTION PHASE – ENVIRONMENTAL MANAGEMENT MEASURES					
Aspect	Issue/ Potential Impact	Mitigation required	Standard Achieved	Responsibility	Frequency
	Improper hazardous material storage and handling may result in soil and groundwater contamination.	<ul style="list-style-type: none"> Hazardous Chemical Substances Regulations promulgated in terms of the OHSA and SABS Code of Practice must be adhered to. All hazardous chemicals must be stored in a secure, bunded and contained area. Should a spill occur, it must be contained and the incident reported to the Contractor and or ECO. 	Storage of hazardous materials in secure, safe and weather proof facilities. Approved absorbent material available onsite. No evidence of spills.	Contractor S/CM	When hazardous material is present onsite during the construction period .
Sanitation	Odours Potential groundwater pollution	<ul style="list-style-type: none"> Adequate sanitary and ablution facilities must be provided for construction workers; The facilities must be serviced regularly to reduce the risk of surface or groundwater pollution. 	Section 19, 20 of NWA. Serviced mobile toilets provided onsite which are serviced regularly. No odour or groundwater pollution.	Contractor S/CM	Throughout construction
Geology Excavations of foundations and installation of services	Disturbance of surface geology and soils	<ul style="list-style-type: none"> The soil profile as exposed on-site to an average depth of 1.7m is not considered an adequate founding medium and comprises two zones. Zone A in the north-western half of the site has moderately collapsible soils (1.25m) and difficult excavations are expected within 1.5m of the surface. The following construction methods should be implemented as prescribed in the Geological Report attached under Appendix D of the BAR: <ul style="list-style-type: none"> Modified Normal Construction Deep Strip Foundations Zone B in the south eastern half comprises moderate to highly collapsible soils and the following foundation recommendations are made: <ul style="list-style-type: none"> Stiffened Concrete / Cellular Rafts Pad and Pier Foundations Dynamic Compaction Old septic tanks, French drains, swimming pools, duck/fish ponds/rubbish pits may be encountered in both zones. This will need to be excavated and backfilled with suitable inert material compacted in controlled layers. The design of foundations should be done in accordance with and under the supervision of a civil/structural engineer and the founding recommendations given above should be verified during construction. Strict quality control is necessary during the compaction procedure to ensure that the desired result is achieved and the densities of compacted soil must be controlled with suitable field tests. The roads and paved areas should be designed according to the anticipated traffic and axle loads bearing the estimated settlement of the roadbed into account. Adequate drainage should be provided to ensure that ponding of surface water on and in the vicinity of the roadbed is prevented. No trees should be planted close to the road surface. All excavations exceeding 1.5m should be adequately stabilized to ensure a safe working environment. 		Principal Contractor Civil Engineer	On-going

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Table 5: Construction Phase Prescribed Management Measures

CONSTRUCTION PHASE – ENVIRONMENTAL MANAGEMENT MEASURES					
Aspect	Issue/ Potential Impact	Mitigation required	Standard Achieved	Responsibility	Frequency
		<ul style="list-style-type: none"> ▪ Although the water table, whether perched or permanent was not encountered during the investigation, the necessary damp proofing precautions should be taken underneath all structures and provision will have to be made to prevent ingress of water beneath foundations. ▪ It is recommended that all constructed embankments exceeding 1,5m or as deemed necessary by the design engineers be stabilized and/or protected using retaining walls. ▪ Embankments and all terrace faces should be adequately compacted and protected from erosion and potential failure. ▪ Structures should be articulated and reinforcement incorporated in masonry and site drainage with services and plumbing precautions implemented. ▪ Storm water should be effectively captured and led well away from all structures; ▪ No ponding of surface water should be allowed to occur adjacent to foundations both during as well as after construction. 			
Air Quality Impact (Dust emissions)	Increased dust emission due to site clearance, excavations, and vehicle entrained dust along Medivet Road (if not upgraded by the time of construction will affect abutting properties.	<ul style="list-style-type: none"> ▪ Minimize vegetation clearance to reduce exposure of bare soil surfaces (i.e. gradual removal of vegetation for project components) ▪ No burning of vegetation cover and waste is permitted during construction. ▪ Minimize dust generation activities, especially during strong winds; ▪ Apply wet dust suppression (light spray) where necessary to manage dust emissions from vehicle movement, site clearance and along the Medivet road (as necessary). ▪ Alternative environmentally friendly dust suppressants can be used (i.e. Dust-A-Side) ▪ Control vehicle speeds along the Medivet Road to 40km/hour. This must be enforced by the Contractor. ▪ Construction materials piles (i.e. building sand etc.) must not exceed a height of 2m. ▪ Shade cloth fencing is also to be used to reduce dust aggravation. ▪ A dust suppression register as well as a complaints register needs to be kept. ▪ All complaints received need to be investigated with remedial action taken communicated to the affected party within 14 days. 	<p>Comply with National Dust Control Regulations of 2013.</p> <p>Main Complaints Register</p> <p>Comply with Section 32 of NEM: AQ 39 of 2004.</p> <p>No visible dust plumes along Medivet Road or at abutting properties. No complaints registered.</p>	<p>Contractor</p> <p>Monitored by S/CM</p> <p>Audited by ECO</p>	<p>Implement through construction. During periods of low rainfall or as required.</p>

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Table 5: Construction Phase Prescribed Management Measures

CONSTRUCTION PHASE – ENVIRONMENTAL MANAGEMENT MEASURES					
Aspect	Issue/ Potential Impact	Mitigation required	Standard Achieved	Responsibility	Frequency
Noise impact	Intermittent noise will be generated during construction activities, use of machinery, excavators, hand tools, site clearance and delivery of construction material will result in increased noise levels and will cause a nuisance to abutting properties and nearby small holdings.	<ul style="list-style-type: none"> It is advisable to first establish the development boundary wall to assist in reducing the noise propagation and visual impact (if feasible). Construction works should be carried out between 07h00 – 17h00 on weekdays, and Saturdays from 07h00 – 14h00. No construction work should be carried out on Sundays or public holidays. All equipment on site should be kept in good working condition and all activities must comply with the Noise Control Regulations and SANS 10103 specifications for maximum allowable noise levels for suburban districts. The contractor will take preventative measures (screening, timing, pre-notification of affected parties) to minimize complaints regarding noise nuisances; Noise operations must be combined so that they occur where possible at the same time. A community complaints register must be kept onsite. Respond to complaints concerning noise generation by taking responsible action to reduce the impact. Notify adjacent landowners (abutting) prior to undertaking activities that may generate high noise levels that may cause a nuisance. Workers' exposure to ambient noise levels exceeding 85dBA must wear appropriate Personal Protective Equipment (PPE). 	<p>Maintain a Noise Register.</p> <p>Comply with Section 34 of NEM: AQ 39 of 2004.</p> <p>Noise Control Regulations, 1994</p> <p>SANS 10103 of 2008 (noise levels).</p> <p>Comply with Environmental Health and Safety Regulations (noise level guidelines).</p> <p>Standard achieved – no noise complaints.</p>	<p>Contractor S/CM</p> <p>Audited by ECO</p>	<p>Daily</p> <p>Notify landowners in the event that high noise generating activities are planned.</p>
Heritage, Cultural and Palaeontological Resources	Excavations Deep excavations might probably unearth any cultural or heritage resources	<p>Chance Find Protocols are recommended in case any resources are unearthed:</p> <ul style="list-style-type: none"> If any heritage resources are uncovered the construction activities should halt. SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021-462-5402) must be alerted per section 35 (3) of the National Heritage Resources Act. Although highly unlikely, if any unmarked graves are discovered, the SAHRA Burial Grounds and Graves Unit (Thingahangwi Tshivhase 012-941-4960) must be alerted immediately as per Section 36 (6) of the National Heritage Resources Act. A professional archaeologist or palaeontologist must be contacted as soon as possible to inspect the findings. If the newly unearthed heritage resources are of high significance a Phase 2 rescue operation may be required with permits issued by SAHRA. Contact Ubique Heritage Consultants: Heidi@ubiquecrm.com; jan@ubiquecrm.com; (+2772-141-8860). 	<p>Compliance with Section 35 (3), Section 36(6) of NHRA.</p> <p>Accredited archaeologist (ASAPA registered) must be commissioned to assess the find and determine the mitigation measures.</p>	<p>S/CM ECO Accredited Archaeologist</p>	<p>As and when resources are found and identified</p>
	Loss of fossil heritage (destroy or permanent seal in of fossils below surface.	<p>If fossil remains/trace fossils are discovered during any phase of construction, either on the surface or exposed by excavations, the Environmental Control Officer (ECO) in charge of the development must report to SAHRA (111 Harrington Street, Cape Town, Tel: 021-462-4502) so that mitigation can be carried out by a palaeontologist.</p>	<p>Accredited palaeontologist (ASAPA registered) must be commissioned to assess the find and determine the mitigation measures.</p>	<p>S/CM ECO Accredited Palaeontologist</p>	<p>As and when resources are found and identified</p>

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Table 5: Construction Phase Prescribed Management Measures

CONSTRUCTION PHASE – ENVIRONMENTAL MANAGEMENT MEASURES					
Aspect	Issue/ Potential Impact	Mitigation required	Standard Achieved	Responsibility	Frequency
Visual impact	Site clearing may be visually intrusive to abutting properties, and motorists travelling on the D1485 Marakele Road and Medivet Road. Sources of impact include: <ul style="list-style-type: none"> Removal of vegetation Use of construction equipment Clearing for the internal street network and stands.	<ul style="list-style-type: none"> Screening of the construction site is recommended to shield the construction activities from the abutting land owners and small holdings to minimize the visual impact, <u>alternative establish the development boundary wall first with only screening measures implemented along Medivet Road.</u> Gradual removal of vegetation for the internal road network, services and residential units will reduce the visual intrusion further. The construction site must be kept free of litter, contained in appropriate bins/containers and must be removed on a weekly basis. Any laydown areas must be placed in an area that is not visually obstructive to the neighboring properties. All the laydown areas and temporary structures (if any) must be decommissioned and area rehabilitated once construction is complete. 	No complaints	Contractor S/CM	Implement during construction and monitor every month.
	Construction lights from the laydown area could be intrusive to abutting properties at night.	Lighting at the construction site (at night) should be sufficient for security but should not constitute illumination/light pollution to abutting properties.	No complaints	Contractor S/CM	Implement during construction and monitor every month.
Traffic and Safety Impact	Increased traffic at the main intersection and Medivet Road may disrupt road users.	<ul style="list-style-type: none"> The traffic statement requires no road improvements to the D1485 Marakele-Thabazimbi road. It states the intersection with the Medivet Road (eastern leg) is operating at an acceptable LoS. No recommendations are made for the upgrading of the Medivet Road it is however noted in the Civil Engineering Report but is the responsibility of TLM. Limit unnecessary vehicle movement. Movement of construction vehicles to and from the site should be conducted in off-peak traffic flow; Heavy vehicle crossing signs and entrance road construction signs must be placed along the D1485 (at intersection) and along Medivet Road. Caution signs of 60km/h speed limit shall be placed at heavy vehicle crossing points. 	<p>National Road Traffic Act (No 93 of 1996) – Road safety.</p> <p>Movement of construction machinery during off peak time traffic on adjacent road network.</p> <p>Improved LoS at intersection.</p> <p>No complaints.</p>	Contractor Plant Operators Labourers S/CM	Throughout construction phase

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Table 5: Construction Phase Prescribed Management Measures

CONSTRUCTION PHASE – ENVIRONMENTAL MANAGEMENT MEASURES					
Aspect	Issue/ Potential Impact	Mitigation required	Standard Achieved	Responsibility	Frequency
	Further deterioration of the Medivet Road condition, which is already in poor condition (if not upgraded construction start)	<ul style="list-style-type: none"> ▪ The Traffic Statement does not recommend any road upgrades. The Civil engineering reports make note of a required road upgrade. ▪ TLM is proposing to upgrade the Medivet Road (it's an action item in the municipal IDP) scheduled for the next two financial years 2023 – 2024. It will be funded by PPC Dwaalboom. ▪ The developer cannot carry this responsibility since the deterioration is owed to a cumulative impact from existing residential developments and small holdings. ▪ If the road upgrade has not taken place by the start of construction the developer/contractor would need to take photographic evidence of the condition of the road before construction starts. ▪ Any <u>proven</u> damage caused to the road by construction vehicles must be repaired/rectified by the developer. 	<p>TLM to upgrade the road as set out in IDP action plan.</p> <p>If not upgraded, road condition of Medivet Road (if not upgraded) must be maintained / improved.</p> <p>No complaints</p>	<p>Developer</p> <p>Contractor</p> <p>Audit ECO</p>	<p>Any damage rectified by developer on a continued basis during construction. (When and where damage can be proven).</p>
<p>Construction waste</p> <p>Generation, storage and disposal of waste</p>	<p>If not controlled/managed, construction waste will have a negative impact (i.e. littering, windblown contamination, pollution of soil, groundwater pollution, storm water runoff etc.). Wastes are likely to include domestic waste, spent containers, waste concrete mix, spent paint containers and brushes, rubble and grey water from chemical toilets.</p>	<ul style="list-style-type: none"> ▪ Waste skips/bins must be provided at a designated area on the construction site; ▪ All solid waste must be removed off-site every week (pending the volume of waste produced) using waste disposal trucks (a licensed contractor) to the Thabazimbi Landfill Site. ▪ Proof of certificate of safe disposal must be kept on record and provided to the ECO. ▪ Where domestic waste is collected by the TLM, a collection receipt will be suitable proof of safe disposal. ▪ The maximum domestic waste storage period must be 10 days. <ul style="list-style-type: none"> ○ All waste generated during the construction phase must be disposed of every week at the registered Thabazimbi Landfill Site. ○ No domestic waste may be kept/stored for longer than 10-days. ○ No construction waste may be kept/stored for longer than 30-days. ▪ Surplus concrete must be removed from site when nearing completion of different stages of construction work. ▪ Grey water from mobile toilets must be stored in sealable marked containers and disposed of with any other waste water from the construction work at the Thabazimbi Waste Water Treatment Works. 	<p>Chapter 4, Section 16 and 27 of the NEM: WA.</p> <p>CARA Act 43 of 1983- Section 19.</p> <p>ECA Act 73 of 1989 – Section 20.</p>	<p>Contractor</p> <p>S/CM</p> <p>ECO</p>	<p>Removal required through construction period. Removal required on weekly basis.</p> <p>Max storage period for domestic waste is 10 days.</p> <p>Construction waste max storage period 30 days.</p>
<p>Health, Safety and Security</p>	<p>Increased construction workers/movement in the local area may threaten the security in the area.</p>	<ul style="list-style-type: none"> ▪ Workers must be identified by an overall of the contractor's logo. ▪ Workers must not be allowed to trespass on adjacent private land. ▪ The construction site must have controlled access. ▪ Construction vehicles must be marked. 	<p>No safety and or security incidence.</p> <p>No complaints.</p>	<p>Contractor</p> <p>Labourers</p> <p>S/CM</p>	<p>Throughout construction period.</p>

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Table 5: Construction Phase Prescribed Management Measures

CONSTRUCTION PHASE – ENVIRONMENTAL MANAGEMENT MEASURES					
Aspect	Issue/ Potential Impact	Mitigation required	Standard Achieved	Responsibility	Frequency
	The health and safety of workers and other personnel utilizing the site might be at risk if proper preventative measures are not put in place.	<ul style="list-style-type: none"> The contractor must implement standards set out in the Occupation Health and Safety Act 85 of 1993. This act aims at protecting workers concerning their activities at work. The constructor must ensure that operational firefighting equipment is present onsite at all times as per the OHSA. Emergency procedures applicable to the construction phase must be set up before commencement of construction activities; Workers must be supplied with hearing protection if noise levels exceed 85dB (decibels); All flammable substances must be stored in dry areas which do not pose an ignition risk to the said substances. No open fires will be allowed onsite unless in a demarcated area identified by the ECO. Appropriate warning signs must be in place to notify the public regarding construction activities and any areas of high risk, i.e. open excavations. Appropriate PPE must be worn by workers at all times. 	Compliance with Occupational Health and Safety Act 85 of 1993.	Contractor Labourers S/CM	Throughout construction period.

10.3 OPERATIONAL PHASE MANAGEMENT MEASURES

Table 6: Operational Phase Prescribed Management Measures

OPERATIONAL PHASE – ENVIRONMENTAL MANAGEMENT MEASURES					
Aspect	Issue/ Potential Impact	Mitigation required	Standard Achieved	Responsibility	Frequency
Upkeep and maintenance of Sewage Infrastructure	Sewage leakages from pipelines or at pump station may occur and impact on the groundwater quality.	<ul style="list-style-type: none"> Sewage will be drained to the Thabazimbi Waste Water Treatment Works. A pump station (i.e. submersible pump system) will be installed by the applicant to operate in parallel with the existing pump station in order not to exceed the capacity of the rising mains. Regular sewage infrastructure inspections should be implemented by the township body corporate and faults/leaks must be reported immediately to the TLM for repair. 	Section 19 and 20 of NWA.	Body Corporate TLM	Quarterly basis
Traffic Impact	Increased traffic at the D1485 Thabazimbi-Marakele Road intersection (33AM and PM trips)	No road improvements are required in terms of the Traffic Impact Statement. The intersection is operating at an acceptable level of service (LoS).			

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Table 6: Operational Phase Prescribed Management Measures

OPERATIONAL PHASE – ENVIRONMENTAL MANAGEMENT MEASURES

Aspect	Issue/ Potential Impact	Mitigation required	Standard Achieved	Responsibility	Frequency
	Increased traffic along Medivet Road will add to further deterioration of road surface (if not upgraded by TLM when township becomes operational.	<ul style="list-style-type: none"> The upgrade of Medivet Road must be implemented by TLM and is scheduled for the 2023-2024 financial years. 	Tarred access road leading to small holdings and residential developments.	TLM	Once-off
Waste Management	Generation of domestic and garden waste by development	<ul style="list-style-type: none"> The Body Corporate/Home Owners Associations must ensure that each household dispose of domestic waste in a wheelie garbage bin and must make provision for a garden refuse collection point. Waste will be collected by the TLM once a week using municipal dump trucks and disposed of at the registered Thabazimbi Landfill Site. The Body Corporate should appoint a private local waste contractor/s (i.e. Dail-a-Drum) to collect garden refuse and remove it to the local landfill site. 	<p>Service agreement with TLM for domestic waste removal.</p> <p>Service agreement with private contractor for garden refuse removal.</p>	TLM HOA to appoint private contractor to remove garden refuse.	Once a week throughout operational phase.
Storm water Management	Increased runoff from hardened surface in township	<ul style="list-style-type: none"> Storm water infrastructure must be monitored and maintained post construction to ensure that damage to infrastructure and erosion is prevented. 	Compliance with Section 19, 20 of NWA 36 of 1998 and Conservation of Agricultural Resources Act (Act 43 of 1983.	HOA TLM	Inspect after each heavy rain event.
Visual Impact	Gradual change of character of direct area from small holdings to medium residential.	No mitigation proposed.			

11. ADMINISTRATIVE REQUIREMENTS

11.1 Record Keeping

All legal documents required for the project must be available at the project site:

- Environmental Authorisation issued by LEDET
- LEDET approved EMPr
- DFFE Protected Tree Permits must be kept on record
- Signed Environmental awareness training register
- Environmental Audit Reports (against the EMPr)
- Public Complaints register
- Record of emergency incidents and recorded action taken for remediation

The S/CM is responsible for maintaining all records concerning the EMPr requirements on site. Relevant staff, contractors and sub-contractors must be acquainted with the contents of the EA and the EMPr.

A complaints register must be kept by the Site/Construction Manager at the site and all complaints must be recorded. Complaints shall be investigated within 24 hours, corrective action implemented and feedback should be given to the complainant on the remedial action taken.

The Site/Construction Manager shall advise the ECO of any emergencies on Site, together with a record of action taken, within 24 hours of the emergency occurring. Such emergency shall be reported to BJE.

Project permits should be reviewed on an annual basis to verify validity. Expiry of permits/licenses should be foreseen and renewed in time.

Records to be kept at the site at all times include:

- Waste manifest / safe disposal documents

All records as stipulated above must be made available to the ECO on request during the two audits, as well as at any time as requested by the ECO or LEDET.

11.2 Emergency Preparedness to avoid pollution/degradation of the environment

An environmental risk deals with the probability of an event causing a potentially undesirable effect on the environment. It can be defined as an accident causing adverse effects by effluents, emissions, wastes, veld fires, chemical spills and leaks which result from natural, technological or human-induced factors.

How risks will be dealt with include:

- Contain potential pollutants and contaminants;
- Ensure that handling of potential pollutants and contaminants is conducted in a bunded area on impermeable surfaces;
- Implement the waste management for all waste streams on site;

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Where environmental emergencies arise, applicable emergency procedures must be followed. The name of responsible personnel and emergency services shall be available to staff and shall be displayed at the project site.

The Site/Construction Manager shall advise the ECO of any emergencies on Site, together with a record of action taken, within 24 hours of the emergency occurring. Telephone numbers of emergency services shall be with the Contractor and Site/Construction Manager at all times.

The responsibility of the ECO is;

- Identify problem areas and provide action plans to avoid further environmental damage;
- Review the proposals for pollution control measures and advise on its adequacy;
- Ensure that significant environmental incidents are reported to DWS and LEDET.

The contractor and appointed Site/Construction Manager are responsible for the practical implementation of the EMPr and will be responsible for reporting the environmental incident/risk to the ECO.

(a) Fire

The contractor shall advise the relevant authority of a fire as soon as one starts and shall not wait until he can no longer control it. The Contractor and Site/Construction Manager shall ensure that employees are aware of the procedures to be followed in the event of a fire.

(b) Accidental leaks and spillages

The contractor and Site/Construction Manager shall ensure that employees are aware of the procedures to be followed for dealing with spills and leaks, which shall include notifying the ECO and the relevant authorities. The contractor shall ensure that all the necessary materials and equipment for dealing with spills and leaks are available on site at all times. Treatment and remediation of the spill areas shall be undertaken to the reasonable satisfaction of the ECO.

In the event of a hydrocarbon spill, the source of the spillage shall be isolated and the spillage contained. The area shall be cordoned off and secured. The contractor shall ensure that there is always a supply of absorbent material readily available to absorb/ breakdown or where possible, be designed to encapsulate minor hydrocarbon spillages. The quantities of such materials shall be able to handle a minimum of 200 ℓ of hydrocarbon liquid spill. Any spills must be cleared and the contaminated soil/sludge disposed of in an appropriate manner, approved by the ECO, or at a licensed hazardous waste disposal site.

(c) Noncompliance with the EMPr or any applicable legislation

(d) **Environmental incidents** shall be investigated by the competent person and an environmental incident report shall be forwarded to the holder of the environmental authorisation, BJE. Incidents are to be reported to the DWS (relevant catchment management agency) and LEDET. The incident report shall be filed within 5 working days.

12. ENVIRONMENTAL MONITORING AND AUDITING

12.1 Monitoring and Auditing programme

Regulation 34 of the NEMA EIA Regulations of 2014 requires that an environmental authorisation and EMPr is audited and an Environmental Audit Report be submitted to the LEDET. An Environmental

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Audit Report must be prepared in accordance to Appendix 7 of the same regulations. Audit Reports must be conducted and submitted to LEDET at intervals as indicated in the environmental authorisation. Mitigation measures stipulated in the EMPr must be implemented.

Given the small scale of the project and low sensitivity of the application site limited auditing would be required i.e.

- A qualified Environmental Control Officer must be appointed to:
 - Conduct an initial site visit during site establishment
 - Conduct a site visit three months into construction including the submission of one (1) audit report to LEDET
 - One (1) post-construction site visit and audit / close-out report to LEDET

12.2 Penalties for Non-Compliance

Section 28 of the National Environmental Management Act No 107 of 1998 states those responsible for environmental damage must pay the repair costs both to the environment and human health and the preventative measures to reduce or prevent further pollution and/or environmental damage (The 'polluter pays' principle).

Should the Contractor fail to comply with the requirements of the EMPr, he/she will be penalised.

The BJE and the ECO will state the value of a fine based on the nature, extent and duration of the offence and subsequent environmental damage and will be within the confines of the contractual arrangements. Such penalties shall be payable in addition to any remediation costs for correction of environmental damage as a result of non-compliance to this EMPr. This will be for the Contractors account.

Note that the following is applicable:

- In terms of the Conventional Penalties Act (1962), a creditor is not entitled to recover both the penalty and damages; and
- Accordingly, where a Contractor causes damage, BJE can either enforce a penalty or make the Contractor make good the damage, but not both.

The Contractor is deemed NOT to have complied with this specification if:

- Within the boundaries of the site, site extensions and access roads there is evidence of contravention of the requirements of the EMP;
- Environmental damage ensues due to negligence;
- The Contractor fails to comply with corrective or other instructions issued within a specific time;
- The contractor fails to comply with a site instruction given by the Engineer based on the ECO report;
- The Contractor fails to respond adequately to complaints from the public; and
- Legal action is instituted against the proponent in terms of Environmental laws.

Payment of any fines in terms of the contract will not absolve the offender from being liable for prosecution in terms of any law.

12.3 Amendments of EMPr

Any amendments to the EMPr should be dealt with as stipulated in Section 35-37 of GN R 326.

13. ENVIRONMENTAL AWARENESS TRAINING

BJE and its appointed Principal Contractor and Site / Contractor Manager must provide environmental awareness training to reduce exposure to liability for environmental degradation caused by errant employees.

The training should be done verbally and would be a once-off-event; the Contractor should however make provision for weekly training / Toolbox talks. Environmental Awareness must be fostered among the construction workforce to implement environmentally sound practices to minimise environmental incidents and maximise environmental compliance. The workforce is to be briefed on their environmental obligation in terms of the EMPr.

Particular training shall be provided in terms of the site's environmental features, sensitivities, and examples of heritage finds. The EMPr and Composite Map of the study site would be presented to employees to highlight specific requirements and sensitivities.

The Contractor/Site Manager should provide and facilitate the onsite briefing and demonstration. Awareness training should focus on:

- Description of the environmentally sensitive features i.e. Camel Thorn trees to remain;
- Explain simple key concepts;
- Provide examples of environmental degradation and pollution sources
- Explain the roles and responsibilities of the contractors, and employees in managing the environment;
- Devise basic principles to manage the environment
- Indicate laws applicable to the management and protection of the environment;
- Indicate day-to-day preventative measures to assist elimination of pollution and degradation (prevention is better than cure)

The Site /Construction Manager would be responsible to re-evaluate the need for environmental awareness training based on recorded incidents and developing issues.

A signed register documenting all employee's environmental training and awareness programmes must be kept on record for verification purposes.

14. OTHER INFORMATION REQUIRED BY THE LEDET

The Environmental Audit Report will be submitted to BJE and LEDET as follows:

- One (1) during construction based on a site establishment inspection and again three (3) months after construction commencement
- One (1) post-construction as a close-out report to LEDET

15. CONCLUSION

This EMPr has been prepared by Naledzi Environmental Consultants Pty Ltd for the development of Thabazimbi Extension 75 on Portion 129 of the farm Doornhoek 318-KQ located in the jurisdiction of Thabazimbi Local Municipality in the Waterberg District of Limpopo Province.

Based on the findings of the investigations carried out by Naledzi and the specialists, we find that the potential environmental impacts associated with project are negligible and can be limited to acceptable levels with the implementation of the EMPr. It is recommended and emphasised that the mitigatory measures set out be adhered to at all times to minimise any threats to the environment and limited any nuisance impacts that may raise complaints from abutting properties/landowners.

All the necessary permits and consents as detailed in section 6.2 must be secured before the development may commence. LEDET must be given a fourteen (14) day written notice before construction starts. At the same time, notice must also be given to adjacent landowners along the Medivet Road (via email/telephonically).

SIGN OFF BY ENVIRONMENTAL ASSESSMENT PRACTITIONER

This EMPr has been compiled by Naledzi Environmental Consultants Pty Ltd.



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