ENVIRONMENTAL MANAGEMENT PROGRAMME

FOR

SOUTH GERMISTON X 25
(A PART OF PORTION 103 OF THE FARM DRIEFONTEIN 87 IR)

Ref Nr: LOK2017/003

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ABBREVIATIONS

EMM	Ekurhuleni Metropolitan Municipality
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
GDARD	Gauteng Department of Agriculture and Rural Development
I & AP's	Interested and Affected Parties
IDP's	Integrated Development Plans
LDO's	Land Development Objectives
m	Metres
NEMA	National Environmental Management Act
OHSA	Occupational Health and Safety Act
PES	Present Ecological State
PPE	Personal Protective Equipment
PPP	Public Participation Process
PHRA-G	Provincial Heritage Resources Authority - Gauteng
SAHRA	South African Heritage Resources Agency
SAPS	South African Police Service

1 Details of the Environmental Assessment Practitioner

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ENVIRONMENTAL MANAGEMENT PROGRAMME

2 Introduction

GIBB (Pty) Ltd appointed Lokisa Environmental Consulting CC on behalf of the Ekurhuleni Metropolitan Municipality to obtain authorisation from the relevant Environmental Authority for the proposed development of a residential township with associated uses to be situated on a part of Portion 103 of the Farm Driefontein 87 IR.

The Environmental Management Programme serves as a Document to be used to implement suitable environmental management practices during the construction of the proposed residential development to be known as South Germiston Extension 25 with the associated infrastructure thereto.

This Environmental Management Programme also serves the purpose to ensure that the construction activities take place in an environmentally responsible manner and that potential impacts identified and associated with this activity are adequately mitigated and that the relevant recommendations of the Environmental Impact Assessment and the resultant Environmental Authorisation are adhered to.

The site is located north east and parallel to the railway line of Kutalo Station and between Kutalo Road in the north and Henderson Street in the south, Germiston in the jurisdiction of the Ekurhuleni Metropolitan Municipality. Tide Street/Lower Boksburg Road is 300m to the north of the site. Please refer to figure 1 below.

The area directly east of the site is developed for residential purposes and the areas to the north and south is industrial and mining related. A railway line forms the western boundary of the site.

The site

Figure 1: Locality map

Project description

The proposed residential township development is to include the following uses.

- "Residential 4" at 120 units per ha
- Public Open Space

The entire project is to take place on an area measuring 6.297ha in extent.

The proposed development will be provided with the necessary services such as water, electricity, storm water reticulation, sewage reticulation etc.

3 Purpose

The purpose of the EMPr is to act as an instrument to be used by the developer to ensure sound environmental practices are incorporated during the construction and operation of the development.

The EMPr is a detailed programme for the implementation of the mitigation measures to minimise negative environmental impacts during the life-cycle of a project. The EMPr contributes to the preparation of the contract documentation by developing clauses to which the contractor must adhere for the protection of the environment. The EMPr specifies how the construction of the project is to be carried out and includes the actions required for the Post-Construction Phase to ensure that all the environmental impacts are managed for the duration of the project's life-cycle.

The EMPr is to be implemented in a co-operative spirit with all parties (Developer, Contractor, affected parties) involved in the setting of environmental objectives and practices. Compliance monitoring will be undertaken by an Independent Environmental Auditor (IEA) to ensure that measures prescribed in the EMPr are being implemented and adhered to.

4 Objectives of the EMPr

The specifications outlined in the EMPr are applicable to all activities undertaken by all persons involved in the execution of the works, including sub-contractors, the workforce and suppliers for the duration of the new commercial development.

The objective of the EMPr is to address the following issues:

1. Environmental Management considerations are implemented from the start;
2. Precautions against damage are taken timely, and
3. Impacts of the development on the environment are minimised.

5 Implementation of the EMPr

5.1 The Developer

5.1.1 The overall responsibility for ensuring compliance lies with the Developer.

5.1.2 The Developer shall comply with the conditions set in the Environmental Authorisation by GDARD.

5.1.3 The Developer shall ensure that the Contractor and all staff members, sub-contractors and suppliers understand and adhere to the EMPr.

5.1.4 The Developer shall ensure that all sub-contractors and suppliers are contractually bound to adhere to the EMPr and Environmental Code of Conduct.

5.2 Environmental Control Officer

5.2.1 The Developer shall appoint a suitably qualified Environmental Control Officer (ECO) to supervise the implementation of the EMPr.

5.2.2 The Contractor must be notified of this appointment and furnished with the contact details of the ECO.

5.2.3 The ECO shall be responsible for:

- Day to day implementation of the EMPr and coordination of all environmental matters on site.
- Ensuring that all staff members are adequately trained and aware of the EMPr and its Environmental Code of Conduct.
- Fortnightly environmental inspections (according to the criteria specified in the EMPr).
- Liaison with the project manager, client and public.

5.3 Senior and Supervisory Personnel

5.3.1 All senior and supervisory staff members shall familiarise themselves with the contents of the EMPr.

5.3.2 They shall understand and know how to implement the control measures of the EMPr and shall be able to assist other staff members in matters relating to the EMPr, specifically with regards to the Environmental Code of Conduct.

5.4 Contractor

5.4.1 The Contractor, including all sub-contractors, shall comply with the specifications in the EMPr.

5.4.2 A representative of all sub-contractors will receive a copy of the EMPr.

5.4.3 A representative of each sub-contractor will be required to sign the Environmental Code of Conduct to give assurance that they understand the EMPr and that they undertake to comply with conditions therein.

6 Environmental Reporting Procedures

An Environmental Incidents Register and an Environmental Complaints Register will be in place and will be maintained by the ECO. Upon occurrence of non-compliance or a complaint of an environmental nature the incident will be recorded in the relevant register.

The registers must be made available to the Site Manager on a monthly basis.

7 Environmental Awareness Training/Induction

The ECO will be responsible for putting in place an Environmental Awareness Training Programme for all staff members. Before commencing with any work, all staff members shall be briefed about the Environmental Code of Conduct. The training programme has to be approved by the ECO. After being briefed about the contents of the Environmental Code of Conduct, staff members shall sign an Environmental Training register as proof of their training.

8 Environmental Control Measures

The EMPr outlines measures to be implemented in order to minimise any potential environmental degradation associated with the construction activities. It should serve as a guide for the Contractor and the construction workforce on their roles and responsibilities concerning environmental management on the construction site and provide a framework for environmental monitoring throughout the construction period.

Measures to control potential environmental impacts during the construction phase are specified. Except where otherwise stated, all these control measures will apply throughout the construction period and, as part of the project contract, the Contractor shall adhere to these measures at all times.

9 Contract

The Contractor/s shall be handed a copy of all relevant documentation regarding the project and shall, before any work is conducted, meet with the ECO in order that the Contractor shall familiarise himself with the environmental issues concerning the site.

A commitment from the Contractor is required on the following issues:

- To take into consideration the landowners in the surrounding area;
- Always behave professionally on and off site;
- To ensure quality of work done, technical and environmental;
- To resolve problems and claims arising from damage immediately to ensure a smooth flow of operations (take relevant steps to ensure no further damage or disturbance and resolve environmental problems adequately with the use of risk management and emergency response procedures);
- To use this EMPr for the benefit of all involved;

- To have an eco-friendly approach;
- Not to litter; and
- To preserve the natural environment by limiting destructive actions on site.

An agreement is to be signed by the Contractor that:

- He/She knows and understands the content of the EMPr,
- He/She is able and shall comply with all legislation pertaining to the nature of the work to be done and all things incidental thereto.

10 Statutory, Legal and other requirements

The following sources of South African Law have been identified and will form the basis of the EMPr:

- Constitution of the Republic of South Africa, Act 1996 (Act 108 of 1996)
- National Environmental Management Act, 1998 (Act 107 of 1998)
- NEMA EIA Regulations, 2014 (Government Notice Regulations Nos. 982, 983, 984, 985)
- National Water Act, 1998 (Act 36 of 1998)
- National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004)
- National Road Traffic Act, 1996 (Act 93 of 1996)
- Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983)
- National Environment Management: Air Quality Act, 2004 (Act 39 of 2004)
- Occupational Health and Safety Act, 1993 (Act 85 of 1993)
- National Heritage Resources Act 1999, (Act 25 of 1999)
- National Environmental Management: Waste Act, 2008 (Act 59 of 2008)
- Gauteng Agriculture Potential Atlas
- GDARD Requirements for Biodiversity Assessments (Version 3)
- Red Data Plant Policy
- Gauteng Conservation Plan (C-Plan Version 3.3)
- South African Guidelines for Sustainable Drainage Systems
- Ekurhuleni Metropolitan Municipality: 2015/16-2018/19 Integrated Development Plan (IDP)
- Gauteng Environmental Management Framework
- Ekurhuleni Metropolitan Municipality By-laws

11 Environmental Standards

11.1 Water Quality Standards

The National Water Act 1998 (Act 36 of 1998)

The aim of this Act is to provide for the fundamental reform of the law relating to water resources; to repeal certain laws; and to provide for matters connected therewith. The quality of both the surface and underground water should be protected during all the phases of the development.

The following standards and guidelines should be adhered to at any time during the development:

- The South African Water Quality Guidelines, DWAF, Department of Health & Water Research Commission, 2nd edition 1999, a set of guidelines for water pertaining to the respective areas of domestic, recreational, industrial and agricultural use.

11.2 Noise Standards

The following standards will be used for this purpose:

- SABS 0103:1994 – The Measurement and Rating of Environmental Noise with respect to Annoyance and to Speech Communication
- SABS APR 020:1992 – Sound Impact Investigations on Integrated Environmental Management.

12 Environmental Management Programme

The following tables form the core of this EMPr for the construction and operational phases of this development. These tables should be used as a checklist on site, especially during the construction phase.

TABLE 1: MANAGEMENT PLAN: CONSTRUCTION PHASE

ISSUE	OBJECTIVE	MITIGATION MEASURES	RESPONSIBILITY	MONITORING FREQUENCY
FLORA AND FAUNA	Protection of existing indigenous flora and fauna against degradation, destruction of habitats/ ecosystem.	• The site is highly degraded however: • Maintain fence/barrier around relevant areas during construction period. • Disturbance to birds, animals and reptiles and their habitats should be prevented at all times. • No indigenous trees to be removed if not entirely necessary. • Site clearing is to be limited to the construction footprint, and the destruction of vegetation in no-go areas should be prevented. • No littering by construction workers is permitted. Any litter will be collected, deposited in a waste bin, and removed off-site to a Licensed Landfill site. • Cleared indigenous vegetation can be stockpiled for possible reuse in later rehabilitation or landscaping, or as a brush pack for erosion prevention. • Stockpiles of vegetation are only to be located in areas approved by the ECO, and may not exceed 2m in height. Methods of stacking must take cognisance of the possible creation of a fire hazard • Only existing roads to be used by vehicles during construction. Roads to be rehabilitated after construction by contractors. • No burning of stockpiled vegetation is permitted. • Care must be taken to avoid the introduction of alien plant species to the site and surrounding areas. (Particular attention must be paid to imported material). • Alien vegetation re-growth must be eradicated throughout the entire site during the construction period. • Landscaping should include indigenous plants only, with preference given to locally indigenous species where possible.	• Contractor • ECO (approval)	• Ongoing by Contractor. • Twice a month by ECO. • Monthly report

ISSUE	OBJECTIVE	MITIGATION MEASURES	RESPONSIBILITY	MONITORING FREQUENCY
		• All construction material, equipment and any foreign objects brought into the area by contractors to be removed immediately after completion of the construction phase.		
CONSTRUCTION CAMP AND RELATED ACTIVITIES	Access Control.	• Construction related traffic to and from site to be minimised. • Access to construction site to be controlled. • Only existing roads to be used by vehicles during construction. • All vehicle and machinery tracks and disturbed areas should be rehabilitated immediately after the construction phase	• Contractor	• Daily by contractor • Twice a month by ECO. • Monthly report
	Provision and control of ablution facilities.	• The Contractor shall make available safe drinking water fit for human consumption at the construction camp and all other working areas. • Washing and toilet facilities shall be provided on site and in the construction camp. • At least 1 toilet must be available per 15 workers using the construction camp. • Toilet paper must be provided and must be available at all times. • The chemical toilets servicing the camp must be maintained in a good state, and any spills or overflows must be attended to immediately. • The chemical toilets must be emptied on a regular basis.	• Contractor	• Ongoing by Contractor. • Twice a month by ECO. • Monthly report
GEO- TECHNICAL ASPECTS	Destruction or loss of topsoil.	• Adherence to the recommendation measures provided by the Feasibility Study: • <u>Highly compressible soil (normal settlement):</u> • Compressible soils may develop in areas where sandy soils have high moisture contents that favour immediate settlement of lightly loaded structures. These conditions may occur where thick deposits of sandy colluvium or residuum have developed. • The piles of waste scattered throughout the site would	• Contractor • ECO (approval)	• Ongoing by Contractor. • Twice a month by ECO. • Monthly report

ISSUE	OBJECTIVE	MITIGATION MEASURES	RESPONSIBILITY	MONITORING FREQUENCY
		require removal before construction of housing takes place • The flattening of waste piles should not be considered, as foundations are often located on top of these layers with disastrous consequences.		
	Excavations.	• All excavations and foundations must be inspected regularly after any event that may have affected their strength or stability. • Once earthworks are complete, disturbed areas are to be stabilised with mulch, straw or other approved method. • Avoid cutting steep embankments.	• Contractor • ECO (approval)	• Ongoing by Contractor. • Twice a month by ECO. • Monthly report
AIR QUALITY AND DUST	Limitation of dust.	• Dust generation should be kept to a minimum. • Dust must be suppressed on access roads and construction areas during dry periods by the regular application of water or a biodegradable soil stabilisation agent. • Speed limits must be implemented in all areas, including public roads and private property to limit the levels of dust pollution. • It is recommended that the clearing of vegetation from the site should be selective and done just before construction so as to minimise erosion and dust. • All materials transported to site must be transported in such a manner that they do not fly or fall off the vehicle. This may necessitate covering or wetting friable materials. • No burning of refuse or vegetation is permitted.	• Contractor • ECO (approval)	• Daily by contractor • Twice a month by ECO. • Monthly report
NOISE	Reduce noise from construction activities impacting on neighbours.	• Noise levels shall be kept within acceptable limits, and construction crew must abide by National Noise Laws and local by-laws regarding noise. • Provincial Noise Regulations as outlined in Provincial Notice No. 5479 of 1999: Gauteng Noise Control Regulations must be	• Contractor • ECO (approval)	• Daily by contractor • Twice a month by

ISSUE	OBJECTIVE	MITIGATION MEASURES	RESPONSIBILITY	MONITORING FREQUENCY
		complied with at all times. Noise must not constitute a nuisance to the neighbourhood during construction and operational phases of the proposed project. During construction phase, construction equipment may only operate between the hours of 08h00 and 17h00 on weekdays, 08h00 and 13h00 on Saturdays, with operation being prohibited on Sundays and Public Holidays. • No sound amplification equipment such as sirens, loud hailers or hooters are to be used on site except in emergencies and no amplified music is permitted on site. • Activities that may disrupt neighbours (e.g. delivery trucks, excessively noisy activities etc.) must be preceded by a notice being given to the affected neighbours at least 24 hours in advance • Equipment that is fitted with noise reduction facilities (e.g. side flaps, silencers etc.) must be used as per operating instructions and maintained properly during site operations.		ECO. • Monthly report
TRAFFIC	Construction vehicles	• The Contractor is to ensure traffic safety at all times, and shall implement road safety precautions for this purpose when works are undertaken on or near public roads. • Construction vehicles to use public roads outside peak hours. • No construction vehicles exceeding defined speed limits. • Appropriate traffic safety signage will be provided to warn the public of construction traffic and flagmen will be on duty where traffic merges with normal road traffic.	• Contractor	• Daily by contractor • Twice a month by ECO. • Monthly report
INFRASTRUCTURE AND SERVICES	Infrastructure and services not to be impacted.	• Ensure services are not adversely affected by construction. • Adhere to the wayleaves provided by DFA and MTN to ensure that their services are not adversely affected.	• Contractor	• Monthly by contractor • Twice a month by ECO. • Monthly

ISSUE	OBJECTIVE	MITIGATION MEASURES	RESPONSIBILITY	MONITORING FREQUENCY
				report
SOLID WASTE MANAGEMENT	Control of dumping of building material, rubble and any material used during construction or rehabilitation.	• No dumping of building material and rubble shall take place other than where it is required to be used as fill. • Proper rubbish/waste bins to be provided. These to be emptied weekly and the waste to be removed to an official waste disposal site.	• Contractor • ECO (approval)	• Ongoing by Contractor. • Twice a month by ECO. • Monthly report
	Refuse and waste control including waste storage and sorting at source.	• Proper rubbish/waste bins to be provided. These are to be emptied weekly and the waste to be removed to an official/licensed waste disposal site. Once again only by officially registered waste-disposal companies and only to official waste sites. • Domestic waste generated on site will be separated at source and recycled. • Recycling of building material. • Stripping and storage of topsoil for rehabilitation. • Waste must not remain on site for more than two weeks. • The site must be managed appropriately and all rubbish and rubble that cannot be recycled must be removed to a Licensed Landfill site. • Waste disposal certificates must be obtained for any waste that is disposed off and presented to the ECO prior to each fortnightly site visit. • No burning of waste.	• Contractor • ECO (approval)	• Ongoing by Contractor. • Twice a month by ECO. • Monthly report
	Stockpiled material	• Methodology of storing topsoil to be approved by ECO • All construction material, equipment and any foreign objects brought into the area by contractors and staff to be removed immediately after completion of construction. • Waste disposal certificates must be obtained for stockpiled material that is disposed of and presented to the ECO prior to	• Contractor • ECO (approval)	• Ongoing by Contractor. • Twice a month by ECO.

ISSUE	OBJECTIVE	MITIGATION MEASURES	RESPONSIBILITY	MONITORING FREQUENCY
		each fortnightly site visit.		• Monthly report
	Removal of excavated material	• To avoid compaction of soil and material left in heaps. • Trucks removing excavated material should use existing roads. • No waste may be placed in any excavations on site. • Spoil should be disposed of at a Licensed Landfill site. • Waste disposal certificates must be obtained for any waste that is disposed of and presented to the ECO prior to each fortnightly site visit.	• Contractor • ECO (approval)	• Ongoing by Contractor. • Twice a month by ECO. • Monthly report
POLLUTION	Minimise soil and groundwater pollution	• Ensure correct position of construction caps, equipment yards, refueling depots, concrete batching plant, bitumen facility, etc. to avoid areas susceptible to soil and water pollution. • Provide containment areas for potential pollutants at construction camps, refueling depot, concrete batching plants and bitumen facilities. • All hazardous materials such as but not limited to paint, turpentine and thinners must be stored appropriately to prevent these contaminants from entering terrestrial and water environments. • Ensure handling, transport and disposal of hazardous substances are adequately controlled and managed according to the Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste (2nd Edition, 1998). • Remove polluted soil from site to be remediated. • All construction vehicles, plant, machinery and equipment must be properly maintained to prevent leaks. • Machinery and vehicles are to be repaired immediately upon developing leaks. Drip trays shall be supplied for all repair work undertaken on machinery on site or at the construction camp. • Drip trays are to be utilised during daily greasing and re-fuelling of machinery and to catch incidental spills and pollutants.	• Contractor • ECO (approval)	• Ongoing by Contractor. • Twice a month by ECO. • Monthly report

ISSUE	OBJECTIVE	MITIGATION MEASURES	RESPONSIBILITY	MONITORING FREQUENCY
		• Drip trays are to be inspected daily for leaks and effectiveness, and emptied when necessary. This is to be closely monitored during rain events to prevent overflow.		
SAFETY AND SECURITY	Ensure social well-being of site personnel.	• Signs should be erected on all entrance gates indicating that no temporary jobs are available, thereby limiting opportunistic labourers and crime. • The site and crew are to be managed in strict accordance with the Occupational Health and Safety Act (Act No. 85 of 1993) [OHSA] and the National Building Regulations • All structures that are vulnerable to high winds must be secured (including toilets). • Potentially hazardous areas such as trenches are to be cordoned off and clearly marked at all times. • Necessary Personal Protective Equipment (PPE) and safety gear appropriate to the task being undertaken is to be provided to all site personnel (e.g. hard hats, safety boots, masks etc.). • All vehicles and equipment used on site must be operated by appropriately trained and / or licensed individuals in compliance with all safety measures as laid out in the OHSA. • An environmental awareness training programme for all staff members shall be put in place by the Contractor. Before commencing with any work, all staff members shall be appropriately briefed about the EMPr and relevant occupational health and safety issues. • All construction workers shall be issued with ID badges and clearly identifiable uniforms. • Access to fuel and other equipment stores is to be strictly controlled. • Emergency procedures must be produced and communicated to all the employees on site. This will ensure that accidents are responded to appropriately and the impacts thereof are minimised. This will also ensure that potential liabilities and damage to life and the environment are avoided.	• Contractor • ECO (approval)	• Ongoing by Contractor. • Twice a month by ECO. • Monthly report

ISSUE	OBJECTIVE	MITIGATION MEASURES	RESPONSIBILITY	MONITORING FREQUENCY
		• Adequate emergency facilities must be provided for the treatment of any emergency on the site. • The nearest emergency service provider must be identified during all phases of the project as well as its capacity and the magnitude of accidents it will be able to handle. Emergency contact numbers are to be displayed conspicuously at prominent locations around the construction site and the construction crew camps at all times.		
CONCRETE AND CEMENT PREPARATION AND HANDELING	The use and preparation of concrete on site has the potential to impact negatively on the environment.	• Cement preparation areas or bulk cement delivery areas must be located prior to construction. • Do not mix cement and concrete directly on the ground. • After closure of batching plants and/or concrete preparation areas all waste concrete shall be removed together with contaminated soil. • Waste material to be removed to a Licensed Landfill site. • The surface must be stripped to a depth of 150mm and the topsoil replaced evenly over the site. • Waste disposal certificates must be obtained for any waste that is disposed of.	• Contractor • ECO (approval)	• Ongoing by Contractor. • Twice a month by ECO. • Monthly report
STORMWATER MANAGEMENT	Manage storm water flow and drainage	• A comprehensive storm water management plan must be compiled and approved by local authority and implemented. • The drainage line must be treated as sensitive and be incorporated into the stormwater management plan. • It is important to ensure vegetation cover as widely as possible, to improve the potential water quality emanating from the site. • Care must be taken to ensure that the connection of storm water outlets/drains to discharge into sewer lines does not take place. • The use of porous blocks to ensure seepage of water on site is recommended to minimise surface runoff which might occur as a result of paved surfaces.	• Contractor • ECO (approval)	• Ongoing by Contractor. • Twice a month by ECO. • Monthly report

ISSUE	OBJECTIVE	MITIGATION MEASURES	RESPONSIBILITY	MONITORING FREQUENCY
GRAVES, ARCHAEOLOGICAL AND OTHER HERITAGE SITES	Protection of Archaeological and heritage sites.	• Ensure that construction staff members are aware that heritage resources could be unearthed and the scientific importance of such finds. • To avoid damage or loss to historic or pre-historic features on site. • A chance find procedure should be implemented and or adhered to. • If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or services provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. • It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area. • The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA.	• Contractor • ECO (approval) • PHRA-G	• Ongoing by Contractor. • Twice a month by ECO. • Monthly report
	Protection of graves.	• Should human bones, skeletons or graves/burial sites be found, the SAPS and SAHRA's BGG office must be notified immediately and all work must cease until the SAPS has finalised its investigation.	• Contractor • ECO (approval) • PHRA-G • SAPS • SAHRA	• Ongoing by Contractor. • Twice a month by ECO. • Monthly report
CLOSURE AND REHABILITATION	Reduction in the potential of land if construction and construction camp	• To ensure that the rehabilitation of the construction area take place and the impact of these activities are limited. • Rehabilitation should preferably take place during a dry spell.	• Contractor • ECO (approval)	• Ongoing by Contractor.

ISSUE	OBJECTIVE	MITIGATION MEASURES	RESPONSIBILITY	MONITORING FREQUENCY
	sites are not rehabilitated.			• Twice a month by ECO. • Ongoing by Contractor. • Twice a month by ECO. • Monthly report
	Rehabilitation	• To introduce an indigenous mixed grass cover to the areas disturbed by construction activities but not part of the development that is representative of the former habitat found at the site. • All areas disturbed during construction shall be reinstated to a state that approximates or betters the state that they were in before construction. • The re-vegetation programme must take cognisance of the climatic and seasonal conditions with the most favourable period being in spring and early summer. • Construction of the development would require a substantial amount of vegetation clearance and earth moving to take place. These disturbances could in all likelihood lead to the colonisation of the site by exotic invasive plant species that specialise in populating disturbed areas. Invasive species are to be removed.	• Contractor • ECO (approval)	• Ongoing by Contractor. • Twice a month by ECO. • Monthly report

TABLE 2: MANAGEMENT PLAN: OPERATIONAL PHASE

ISSUE	OBJECTIVE	MITIGATION MEASURES	RESPONSIBILITY	MONITORING FREQUENCY
SOCIO-ECONOMIC	Visual impact	• Limit adverse impact.	• Developer	• Ongoing
	Noise	• Limit impact of local noises.	• Developer	• Ongoing
TRAFFIC	Minimise traffic congestion on surrounding roads.	• Maintain a control of traffic	• Developer • EMM	• Ongoing
EMPLOYMENT	Make provision for local Employment where possible.	• None	• Developer	• Ongoing
WASTE MANAGEMENT	General waste separated at source	• Adequate numbers of waste disposal receptacles are to be positioned at strategic locations within the development. • All types of waste generated must be disposed of in accordance with the municipal waste disposal requirements. The implementation of integrated waste management approach which incorporates waste reduction, reuse, recycling. Proper recycling containers should be provided and be approximately marked in such a way that users can easily identify them	• Developer	• Ongoing
	Refuse and waste control	• Domestic waste that cannot be recycled to be removed from the site at regular intervals by the local authority. • Hazardous waste must be properly handled and disposed of at an approved landfill site designated for such type of waste	• Developer • EMM	• Ongoing
STORM WATER MANAGEMENT	Maintenance of storm water system	• Storm water shall be managed in accordance with Storm Water Management Plan. • Storm Water Management Plan shall be prepared to incorporate the comments from EMM. • Storm Water Management Plan to be implemented	• Developer	• Ongoing

ISSUE	OBJECTIVE	MITIGATION MEASURES	RESPONSIBILITY	MONITORING FREQUENCY
		and monitored. •		
PRESSURE ON EXISTING INFRASTRUCTURE AND SERVICES	Minimise pressure on existing infrastructure and services	• Integrity of existing services in the area to be ensured.	• Developer	• Ongoing

13 Site documentation, monitoring and reporting

13.1 What needs to be monitored

- Site clearance
- On-site sanitary facilities
- Excavation
- Community relations
- Removal of rubble
- Disposal of Material
- Construction activities
- Protection of buildings and structures
- Site Development Plan
- Construction of structures
- Progress in terms of construction programme
- Rehabilitation
- Re-vegetation

13.2 How, what procedures

- Site inspections by the ECO
- Reporting to by the Project Manager
- Random inspection by the Developer's representative.

13.3 Recording of Information/Data

The standard site documentation shall be used to keep records on site. All documents shall be kept on site and be made available for monitoring purposes. The documentation shall be signed by all parties to ensure that such documents are legal.

The following documentation shall be kept on site:

- Environmental Authorisation
- Environmental Complaints register
- Environmental Incidents register
- Environmental Training register
- Copy of the Environmental Management Programme

13.4 Reporting

Who should be reported to?

- Developer
- GDARD
- EMM
- SAHRA
- PHRA-G

14 Post Construction Audit

A post construction environmental audit is to be conducted by the ECO in order to ensure that all conditions of the EMPr have been adhered to.

15 Amendments to the EMPr

The EMPr is to be submitted to the GDARD for approval prior to implementation. Any changes to the EMPr are to be indicated in the form of addendums.

ANNEXURE A

Environmental Code of Conduct

The Developer is committed to ensuring that the construction of the development is done according to the highest environmental standards so that the ecological footprint of the development is minimised where possible.

The Developer requires that all construction personnel involved in the construction process accept their responsibilities towards the EMPr and the environment. This includes all permanent, contract or temporary workers as well as any other person involved with the project or visiting the site. Ignorance, negligence, recklessness or a general lack of commitment will not be tolerated.

If you do not understand the rules you must seek assistance to ensure compliance. The following people can assist you in ensuring compliance with the EMPr.

Your Supervisor: ……..

Environmental Control Officer: ……

Project Manager: ……

ANNEXURE B

Environmental Complaints Register					
Name of Complainant	**Contact Details**	**Nature of Complaint**	**Responsible Person**	**Date Action Taken**	**Details of Action Taken**

ANNEXURE C

Environmental Incidents Register					
Date	**Incident**	**Action Required**	**Responsible Person**	**Action Implemented**	**Date Action Implemented**

ANNEXURE D

Environmental Training Register				
Company	**Employee**	**Employee Signature**	**Supervisor**	**Supervisor Signature**