



## **ENVIRONMENTAL MANAGEMENT PLAN (EMP)**

Environmental Clearance Certificate for the renewal of the  
proposed development of Elisenheim Nature Estate

APP – 007397 / 260428007397

June 2026

Project: Elisenheim Nature Estate

Location: Windhoek, Namibia

Proponent: Elisenheim Property Development Company (EPDC)

## DOCUMENT INFORMATION

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# LIST OF ABBREVIATIONS AND ACRONYMS

CoW	CITY OF WINDHOEK
ECC	ENVIRONMENTAL CLEARANCE CERTIFICATE
EIA	ENVIRONMENTAL IMPACT ASSESSMENT
EMA	ENVIRONMENTAL MANAGEMENT ACT
EMP	ENVIRONMENTAL MANAGEMENT PLAN
ENE	ELISENHEIM NATURE ESTATE
ETD	ELISENHEIM TOWNSHIP DEVELOPMENT
EPDC	ELISENHEIM PROPERTY DEVELOPMENT COMPANY

# 1. INTRODUCTION

The proponent intends to establish a nature estate development to be known as Elisenheim Nature Estate. The intended Elisenheim Nature Estate (ENE) forms part of the larger Elisenheim Township Development (ETD) located on Portion 5 (a portion of portion 4) of the farm Elisenheim No. 68 in Windhoek, Khomas Region.

In terms of the Environmental Management Act (No. 7 of 2007) and the Environmental Impact Assessment Regulations (GN No 30 of 2012), the proposed development may not be carried out without an Environmental Impact Assessment (EIA), the EIA was originally carried out and approved, with the first Environmental Clearance Certificate (ECC) issued in November 2012. This submission is for the development renewal of the ECC license and is submitted with an updated Environmental Management Plan (EMP).

An EMP is a list of management actions needed to ensure that undue or reasonably avoidable adverse impacts of the planning, construction, operation and decommissioning of a project are prevented, and the positive benefits of a project are enhanced. It assigns responsibilities and will be used as a checklist to monitor compliance at the site.

It is important to note that an EMP is a legally binding document and has been drafted in accordance with the Environmental Management Act (EMA) No. 7 of 2007 and its Environmental Impact Assessment Regulations (2012). The amendment, transfer or renewal of the ECC should be communicated to the Environmental Commissioner as stipulated in the EMA of 2007 (S 39-42) and its EIA Regulations (S 19-20). Any changes to this EMP will require an amendment to the ECC for the development.

## 2. PURPOSE OF THE EMP

The purpose of this document is to guide environmental management throughout the construction and operation stages of the proposed development. Furthermore, it is to ensure that impacts on the environment due to the proposed development are limited. Due to the nature of this development, it is anticipated that all the infrastructure would be permanent, hence decommissioning and rehabilitation is not envisaged.

### 2.1 EMP OBJECTIVES:

- Present measures to avoid, lessen and mitigate adverse impacts on various environmental components, and enhance the value of environmental components where possible.
- Define the roles and responsibilities for the implementation of environmental management and mitigation measures.
- Explain the need for compliance with regulatory provisions and guidelines.
- Explain procedures for compliance monitoring and reporting to the relevant competent and regulatory authorities.

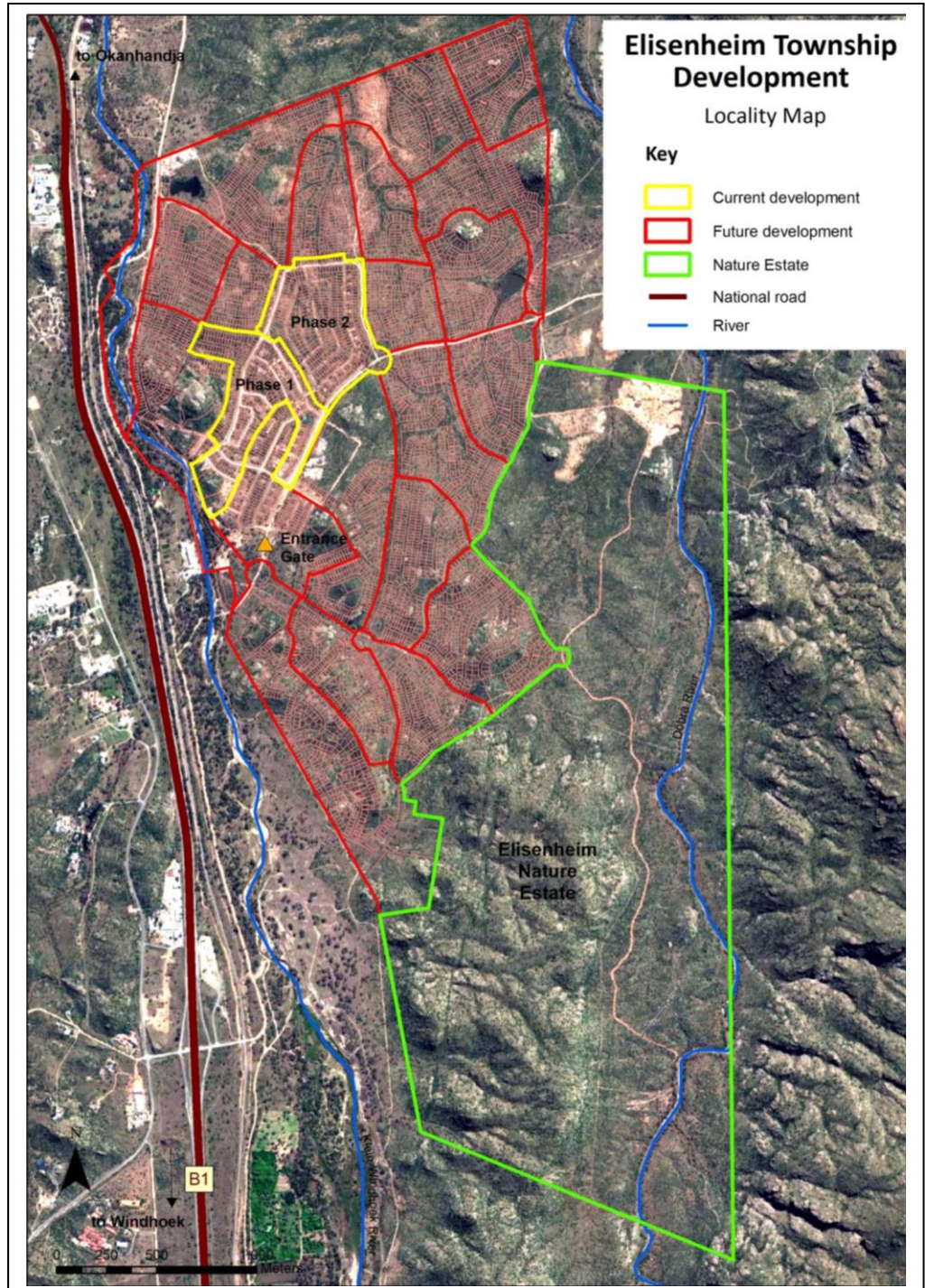
This plan describes the mitigation and monitoring measures to be implemented during the following stages of the development:

- Construction Phase – the period during which the Proponent, having secured the necessary legislative and administrative arrangements, prepare construction tender documents for the development of services infrastructure to service the various erven(s) as well as any other construction processes within the development area. It also includes the period during which the services infrastructure will be constructed to service the various erven(s) within the nature estate; and
- Operational Phase– the period during which the services infrastructure will be fully functional and maintained as deemed necessary.

### 3.PROJECT DISCRIPTION

The proposed ENE will be developed south-east of the existing ETD. The proposed ENE borders the Dobra River on the east with farm Sodendaal and Elisenheim Guest farm to the north-eastern direction as indicated in the locality map below.

The proposed Nature Estate will be a multifunctional development including equestrian related cluster housing, mixed use villages, general residential and business erven will allow for a limited amount of development but not compromising the uniqueness and splendor of the environment. The specific areas to be developed will be determined by ecological and environmental considerations. An in-house nursery propagating indigenous trees and shrubs (Appendix A) will form part of the Private Nature Estate.



Locality map for proposed Elisenheim Nature Estate

## 4. ROLES AND RESPONSIBILITIES

The proponent is ultimately responsible for the implementation of the EMP. There is a need for the involvement of other identified key stakeholders, each fulfilling a different but vital role in ensuring sound environmental management during each phase of these developments. The following positions and their respective responsibilities are outlined as follows:

<b>Developer / Proponent</b>	Elisenheim Property Development Company P.O. Box 11363 Windhoek
<b>Local Authority</b>	City of Windhoek
<b>Contractor</b>	To be appointed
<b>Employer's representative</b>	To be appointed
<b>Environmental Control Officer</b>	Environmental and Social Officer

### 4.1 CONTRACTOR

- The Contractor shall appoint a person from the construction team to take responsibility for the implementation for all provisions of this EMP.
- The Contractor shall at every site meeting report on the status of the implementation of all provisions of the EMP.
- The contractor should implement the environmental awareness training as stipulated in this report.
- The contractor must list the stakeholders of the project and their contact details with whom communication would be required throughout the contract. This list, together with an indication of how stakeholder communication will be done throughout construction, must be agreed upon and given to the employer's representative (ER) before construction commences.
- The contractor is also responsible for complying with this EMP by all sub-contractors.
- The Contractor shall liaise with the social and environmental consultants regarding all issues related to community consultation and negotiation before construction commences.

- The Contractor must adhere to the regulations pertaining to Health and Safety, including the provision of protective clothing and shoes, failing which the contract may be ended immediately.

## **4.2 EMPLOYER'S REPRESENTATIVE (ER)**

Elisenheim Property Development Company (EPDC) will appoint an ER that could act as the Employer's on-site implementing agent and will be responsible to ensure that the Employer's responsibilities are executed in compliance with relevant legislation and the EMP, as follows:

- Any on-site decisions regarding environmental management are ultimately the responsibility of the ER.
- Ensuring that the necessary environmental authorizations and permits have been obtained.
- Assisting the Contractor in finding environmentally responsible solutions to problems with input from the ECO where necessary.
- Ordering the removal of person(s) and/or equipment not complying with required specifications.
- Issuing fines for transgressions of site rules and penalties for contravention of the EMP.
- Providing input into the ECO's ongoing internal review of the EMP, this review report is submitted to the Employer (EPDC or specific Developer Team).
- In addition to general project management, the ER in collaboration with the developer has the responsibility to appoint the Environmental Control Officer (ECO).
- The on-site ER shall assist the ECO where necessary.

## **4.3 ENVIRONMENTAL CONTROL OFFICER (ECO)**

The Environmental Control Officer (ECO) will be a competent person appointed by the ER and developer to act as the Employer's representative to monitor and review the on-site environmental management and implementation of this EMP. The duties include but not limited to:

- The ECO shall be on site daily for the first six months of the construction contract and thereafter on a needs basis (at least weekly).
- Assisting the ER in ensuring that the necessary environmental authorizations and permits have been obtained.

- Maintaining open and direct lines of communication between the ER, Employer, Contractor and I&APs regarding environmental matters.
- Convening and facilitating public meetings.
- Regular site inspections of all construction areas regarding compliance with the EMP.
- Monitoring and verifying adherence to the EMP,
- Monitoring and verifying that environmental impacts are kept to a minimum.
- Taking appropriate action if the specifications are not followed.
- Assisting the Contractor in finding environmentally responsible solutions to problems.
- Monitoring the undertaking by the Contractor of environmental awareness training for all new personnel coming onto site.
- Advising on the removal of person(s) and/or equipment not complying with the specifications.
- Recommending the issuing of fines for transgressions of site rules and penalties for contraventions of the EMP.
- Auditing the implementation of the EMP and compliance with authorization.
- Undertaking a continual review of the EMP and recommending additions and/or changes to the document.

## 5. LEGAL REQUIREMENTS

The table below provides a list of applicable legislations to the proposed project activities.

LEGISLATION	PROVISION AND REQUIREMENTS
Constitution of the Republic of Namibia (1990)	<p>Articles 91 (c) commands the state to actively promote and sustain the environmental welfare of the nation by formulating and institutionalizing policies to accomplish the sustainable objectives which include:</p> <ul style="list-style-type: none"> <li>• Guarding against overutilization of biological natural resources,</li> <li>• Limiting over-exploitation of non-renewable resources,</li> <li>• Ensuring ecosystem functionality,</li> <li>• Protecting Namibia’s sense of place and character.</li> <li>• Maintain biological diversity.</li> <li>• Pursuing sustainable natural resource use.</li> </ul> <p>Article 95(i) recites: “The State shall actively promote... maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future”.</p>
Environmental Management Act 07 of 2007	Ensuring that the significant effects of activities on the environment are considered carefully and in time. To promote the sustainable management of the environment and the use of natural resources by establishing principles for decision-making on matters affecting the environment.
Water Act 54 of 1956 and Water Resources Management Act 11 of 2013	<p>The two (2) Act provides for the management and protection of surface and groundwater resources in terms of utilization and pollution.</p> <p>The Act further provides provision for the control, conservation, and use of water for domestic, agricultural, urban, and industrial purposes. In addition, the Act gives provisions that pertain to license or permit that required abstracting and using water as well as for discharge of effluent.</p>
Soil conservation Act 76 of 1969	The objectives are to make provision for the combating and prevention of soil erosion, and the conservation, protection, and improvement of the soil, the vegetation, and the sources and resources of the water supplies.

Nature conservation Ordinance of 1975.	Section 14 protects and preserves wild animal life, fisheries, wild plant life and objects of geological, archaeological, historical and other scientific interest and for the benefit and enjoyment of the inhabitants of Namibia.
Hazardous Substance Ordinance of 1974	Provides for the control of toxic substances and is thus also relevant for pollution control. It covers the manufacturing, sale, use, disposal, dumping, importing, and exporting of hazardous waste.
Labour Act (No 11 of 2007)	Objectives are: <ul style="list-style-type: none"> <li>• To establish a comprehensive labour law for all employers and employees; to entrench fundamental labour rights and protections.</li> <li>• Regulate basic terms and conditions of employment.</li> <li>• To ensure the health, safety, and welfare of employees; to protect employees from unfair labour practices.</li> <li>• To regulate the registration of trade unions and employers' organizations; to regulate collective labour relations.</li> <li>• To provide systematic prevention and resolution of labour disputes.</li> </ul>
Public Health and Environmental Act, 2015	The objectives of the PHE Act are to. <ul style="list-style-type: none"> <li>• Promote public health and wellbeing.</li> <li>• Prevent injuries, diseases, and disabilities.</li> <li>• Protect individuals and communities from public health risks.</li> <li>• Encourage community participation to create a healthy environment.</li> <li>• Provide for early detection of diseases and public health risks.</li> </ul>
Employment Service Act 8 of 2011	Provides for the establishment of the National Employment Service: <ul style="list-style-type: none"> <li>• To impose reporting and other obligations on certain employers and institutions</li> <li>• To provide for the licensure and regulation of private employment agencies, and</li> <li>• To deal with matters incidental thereto.</li> </ul>
Atmospheric Pollution Prevention Ordinance 11 of 1976	Provides for the prevention of the pollution of the atmosphere and matters incidental thereto. The Ordinance deals with administrative appointments and their functions; the control of noxious or offensive gases; atmospheric pollution by smoke, dust control, motor vehicle emissions; and general provisions.

Pollution Control and Waste Management Policy, 2003	The bill provides a framework for a multitude of administrations on pollution control and waste management in the country. Each authority identified by the bill shall play its respective role.
MEFT Policy on HIV & AIDS	MEFT has developed a policy on HIV and AIDS. In addition, it has also initiated a program aimed at mainstreaming HIV and gender issues into environmental impact assessments.
Local Authorities Act No. 23 of 1992	The Local Authorities Act prescribes how a town or municipality should be managed by the Town or Municipal Council.
National Heritage Act No. 27 of 2004	Aims at protecting, conserving, and registering places and objects of heritage significance.
Roads Ordinance 17 of 1972 and its amendments	<ul style="list-style-type: none"> <li>• Section 36.1 regulates rails, tracks, bridges, wires, cables, subways, or culverts across or under proclaimed roads</li> <li>• Section 37.1 deals with Infringements and obstructions on and interference with proclaimed roads.</li> </ul>
Urban and Regional Planning Act No. 5 of 2018	Town Planning Procedures will be applied for the proposed subdivision Portion 5 (a portion of portion 4) of the farm Elisenheim No. 68 and approval will be obtained from the Urban and Regional Planning Board.
City of Windhoek Disaster Risk Management Plan, 2002	The proposed development should be planned in such a way that it incorporates measures for prevention, preparedness, mitigation, response and rehabilitation in case of disasters
City of Windhoek Waste Management Policy, 2009	All waste management activities during construction and operation phase of the project should be aligned to the objectives of municipal Policy.

## **6. MANAGEMENT ACTIONS**

### **6.1 METHOD STATEMENTS**

During the construction phase, the appointed contractors should be required to prepare and submit method statement that outlines construction activities to be undertaken with mitigation measures prior to commencement of works. The written method statement should be submitted to the ECO and to CoW at least two weeks before the construction commences so that any irregularities can be handled and communicated to the employees. Based on the EMP specifications, the following method statements are required as minimum:

- Site clearing procedures.
- Construction and Operational Procedures
- Materials and Equipment to be used.
- How and where materials will be stored
- Site layout, lay-down areas, and establishment.
- Cement mixing sites.
- Waste management procedures
- Wastewater management procedures
- Traffic flows and control procedures
- Erosion remediation actions
- Emergency handling procedures

### **6.2 ENVIRONMENTAL AWARENESS TRAINING**

All contractors should ensure that adequate environmental awareness training of senior site personnel takes place and that all construction workers and new employees receive an induction presentation on the importance and implications of the EMP prior to the work commencing. The presentation should be conducted by the ECO, in the employees' language of comfort/ choice.

### **6.3 RECORD KEEPING**

The Contractor should keep records of all environmental training sessions, including names, dates and the information presented. Records of environmental incidents report, training records, audit reports and public complaints register should be kept at the site office during the period of the project. It is advised that photographs of the site should be taken before, during and after construction as visual references. These records should be kept for a minimum of two (2) years after completion of the project.

## **6.4 NON-COMPLIANCE AND PENALTIES**

Adherence to this EMP during the project phases will ensure that the environmental impacts associated with the proposed development will be mitigated to a greater extent thus promoting sustainable development. The commitment and co-operation of the identified responsible person(s) will ensure effective implementation of the EMP.

In cases of transgressions and non-compliance to the EMP during the construction phase, the following actions may be taken against the transgressor.

- Disciplinary actions
- Legal actions
- Termination of contract

## 6.5 CONSTRUCTION PHASE

COMPONENT	OBJECTIVE	MANAGEMENT MEASURES	MONITORING ACTIONS AND METHODS	RESPONSIBILITY / PARTNERSHIP	RESOURCES REQUIRED
<b>COMMUNICATION AND STAKEHOLDER COMMUNICATION</b>	Continued involvement of stakeholders	<ul style="list-style-type: none"> <li>– The ER in collaboration with the developer must appoint an ECO to liaise between the contractors, stakeholders, clients, and consultants. The Contractor shall appoint a person from the construction team to take responsibility for the implementation for all provisions of this EMP.</li> <li>– The Contractor shall at every site meeting report on the status of the implementation of all provisions of the EMP.</li> <li>– The contractor should implement the environmental awareness training.</li> <li>– The contractor must list the stakeholders of the project and their contact details with whom communication would be required throughout the contract. This list,</li> </ul>	<p>Ensure that all stakeholders are adequately informed throughout construction and that there is effective communication with and feedback to the consultant and client.</p> <p>Public meeting every 2 months.</p>	ER ECO Contractor	Minutes of meetings

		<p>together with an indication of how stakeholder communication will be done throughout construction must be agreed upon and given to the ER before construction commences.</p> <ul style="list-style-type: none"> <li>– All communication with the stakeholders must take place through the ECO.</li> <li>– A copy of the EMP must be available at the site office for perusal to all stakeholders, who must be invited to raise any concerns and issues as the project progresses.</li> <li>– The Contractor shall liaise with the social and environmental consultants regarding all issues related to community consultation and negotiation before construction commences.</li> <li>– The communication plan, as included in the tender document, shall be binding.</li> <li>– A register will be kept where all complaints</li> </ul>			
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		<p>received from the public should be recorded.</p> <ul style="list-style-type: none"> <li>- The register should be under the authority of the ER.</li> <li>- A sign-off procedure will be in place to address any concerns raised.</li> <li>- Management measures to address the complaint should be indicated in the register.</li> <li>- The register will be submitted to the ER prior to site meetings.</li> <li>- All people on the stakeholders' list should be informed about the availability of the complaints register in writing by the ER prior to the commencement of construction activities.</li> </ul>			
<b>Training of the workforce.</b>	Information dissemination to workforce	<ul style="list-style-type: none"> <li>- Training session with regards to code of conduct, general housekeeping requirements, etc.</li> </ul>	Attendance list to be signed by all participants.	Contractor and Management Team ER	Attendance list Housekeeping requirements
<b>POLLUTION</b>	Prevention of soil pollution	<ul style="list-style-type: none"> <li>- Spillages of any potentially toxic materials, whether by accident or through negligence, must be scooped up</li> </ul>	Inspection and regular clean up. Formal agreement signed with contractors.	Contractors ER ECO	

		immediately into waste bags and disposed of at a site designated for such purpose.			
<b>WASTE MANAGEMENT</b>	Reduce the amount of waste generated.	<ul style="list-style-type: none"> <li>- Have drums readily available on site.</li> <li>- Cement bags must be gathered and disposed of in drums.</li> <li>- Waste must be removed on a daily basis.</li> </ul>	Regular inspection. Reducing waste generated. Formal agreement signed with contractor.	Contractor ER ECO	
	Prevent pollution due to hazardous waste	<ul style="list-style-type: none"> <li>- All cement needs to be mixed on appropriate containers provided.</li> <li>- No paints and solvents to be disposed of on the open ground.</li> <li>- In the event of cement, paint and oil spillages, whether by accident or through negligence, must be scooped up immediately into waste bags and disposed of at a site designated for such purpose.</li> </ul>	Inspection and regular clean up. Formal agreement signed with contractor.	Contractor ER ECO	
	Prevent pollution due to hazardous waste	<ul style="list-style-type: none"> <li>- Any materials left after construction should be removed from the site</li> <li>- Redundant construction materials to be removed once a week</li> </ul>	Inspection. Formal agreement signed with contractor.	Contractor ER ECO	

	Prevent pollution due to affluent.	<ul style="list-style-type: none"> <li>- Chemical toilets should be provided during construction.</li> <li>- These toilets should be within walking distance (&lt;50m) for construction workers.</li> <li>- Spillage or leakage to be cleaned up.</li> <li>- No toilets allowed within 10m from the drainage lines</li> </ul>	Inspection daily. Formal agreement signed with contractor.	Contractors ER ECO	
<b>SOIL EROSION</b>	Minimize habitat destruction and dust generation	<ul style="list-style-type: none"> <li>- An area that is not sensitive in terms of erosion need to be identified and marked out as the area for storing equipment and materials and parking of construction vehicles.</li> <li>- The area of soil that is disturbed should be kept as small as possible to reduce the potential impact of erosion.</li> <li>- Special care needs to be taken in sensitive areas e.g. erodible soils, steeper slope, ridge lines and slopes steeper &gt;1:5</li> <li>- Trees and undergrowth should be left intact as far as possible as they have</li> </ul>		Contractor ER Engineers ECO	Permits

		<p>a soil holding capacity, incorporate into landscaping of erven.</p> <ul style="list-style-type: none"> <li>- Take care not to remove the ground cover and pebble mulch layer.</li> <li>- Creation of scars due to groundwork during construction should be prevented.</li> <li>- Large construction vehicles should be careful in not damaging any trees</li> </ul>			
	Conservation of ridges and steep slopes	<ul style="list-style-type: none"> <li>- NO construction activities allowed in NO GO areas</li> <li>- NO GO Area need to be demarcated by the surveyor.</li> </ul>	Monitoring of unsolicited entrance beyond building restriction line.	ER ECO Surveyor Urban design Team	
<b>TRACKS AND ROADS</b>	Avoid unnecessary clearance	<ul style="list-style-type: none"> <li>- The servitude for the road should be carefully considered, and then the surveyor must mark out the exact servitude, where trees are in the road reserve, the alignment needs to be changed to accommodate the road.</li> <li>- Minimum access roads will be allowed.</li> </ul>	An authoritative person must accompany the contractor while doing the bush clearing to avoid unnecessary damage.	Surveyor Contractor ER ECO Engineer	
<b>WATER POLLUTION AND</b>	Prevent and/or	<ul style="list-style-type: none"> <li>- Cement, paint, oil spillages must be</li> </ul>	The area should be treated as a	Contractor. ER.	

<b>SUPPLY</b>	minimize pollution of ground and surface water resources.	<p>scooped up into waste bags and disposed of at appropriate disposal site.</p> <ul style="list-style-type: none"> <li>- Activities that can lead to pollution should be avoided in the areas adjacent to drainage lines.</li> <li>- Solid or liquid waste</li> </ul>	<p>groundwater sensitive area due to fractures.</p> <p>Regular inspection. Check regularly for any leakages.</p> <p>Formal agreement signed with contractor.</p>	ECO.	
<b>VEGETATION</b>	Conservation of indigenous trees and shrubs.	<ul style="list-style-type: none"> <li>- Indigenous trees are legally protected. No tree felling, wood gathering, burning, harvesting, or damaging to any plant species.</li> <li>- Trees with a trunk diameter exceeding 100 mm (1 meter above ground) shall be left intact.</li> <li>- At the outset of construction (or during construction as may be applicable), the ECO and the contractor shall visit all proposed access roads and other areas to be disturbed.</li> <li>- Areas to be disturbed shall be clearly demarcated, and no land outside these areas shall</li> </ul>	<p>Regular inspection. Formal agreement signed with contractor.</p> <p>The following trees that occur on the site are protected:</p> <ul style="list-style-type: none"> <li>- Acacia erioloba</li> <li>- Albizia anthelmintica</li> <li>- Aloe littoralis</li> <li>- Boscia albitrunca</li> <li>- Erythrina decora</li> <li>- Maerua schinzii</li> <li>- Ozoroa crassinervia</li> <li>- Searsia lancea</li> <li>- Steganotaenia araliacea</li> <li>- Ziziphus mucronata</li> </ul>	Contractor Developer ER	Permit requirements

		<p>be disturbed or used for construction activities.</p> <ul style="list-style-type: none"> <li>- Detailed instructions and final arrangements for protection of sensitive areas, keeping of topsoil and rehabilitation of disturbed areas shall be made, in line with the guidelines in this document.</li> <li>- The ECO shall be consulted before any new areas are disturbed which have not yet been visited.</li> <li>- No off-road driving shall be allowed.</li> <li>- A prescribed penalty will be deducted from the Contractors payment certificate for every mature tree removed without approval.</li> <li>- No trees may be felled or live wood in the project area removed by any member of the construction team, including sub-contractors.</li> <li>- Contravention of this arrangement is liable for a prescribed penalty.</li> </ul>			
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		<ul style="list-style-type: none"> <li>- A prescribed penalty will be deducted from the contractor's payment certificate if it is shown that trees and/or branches have been broken down unnecessarily, or that any plants have been collected illegally, by any of the staff or sub-contractors.</li> <li>- Trees should be trimmed with the correct equipment, i.e. a chain saw. No axes may be used. Branches shall be neatly trimmed as close to the main branch as possible.</li> <li>- No wood may be collected from the construction area. The contractor must provide either meals or cooking gas for the workforce to cook their own meals (during lunch hours).</li> <li>- Informal vendors that sell food will also not be allowed to collect wood from the construction area and surrounds.</li> </ul>			
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<p><b>CONSERVATION OF BIODIVERSITY</b></p>	<p>To minimise damage to soil and biodiversity during the construction phase</p>	<ul style="list-style-type: none"> <li>- At outset of construction the ER &amp; ECO and the contractor shall visit all proposed access roads, and other areas that could be disturbed. Areas to be disturbed shall be clearly demarcated, and no land outside these areas shall be disturbed or used for construction activities.</li> <li>- The ER &amp; ECO shall be consulted before any new areas are disturbed which have not yet been visited to survey, mark the areas requiring protection in the road reserve, access roads, as well as areas identified and pointed out to the contractor by the engineer, ECO or Environmental Consultant.</li> <li>- Prominent ridges, steep slopes and drainage lines should be demarcated as NO GO areas.</li> <li>- No construction personnel to enter these areas.</li> <li>- Construction vehicles are only allowed within the areas demarcated.</li> </ul>	<p>Discussions with architect and engineers. Inspections daily.</p>	<p>Architect Engineers ER ECO Developer Contractor</p>	
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		<ul style="list-style-type: none"> <li>- Poaching, collecting wild animals or setting traps is prohibited. Any staff member caught in such an activity must be handed over to the authorities and should be dismissed from the contract.</li> <li>- Avoid small mammal/ reptile nesting/ breeding sites where possible.</li> <li>- A prescribed penalty will be deducted from the contractor's payment certificate if it is shown that any of his staff or sub-contractors is involved in trapping, hunting or any kind of collecting wild animals in the vicinity of the work sites. Offenders will be handed to the authorities for prosecution.</li> </ul>			
	Conservation of drainage lines	<ul style="list-style-type: none"> <li>- Excavation of alluvial material from drainage lines is not allowed.</li> </ul>	Regular inspections	Contractor ECO	
<b>VISUAL IMPACTS</b>	Minimise visual impacts	<ul style="list-style-type: none"> <li>- All disturbed areas shall be reshaped to their original contours; as close as possible to the natural conditions before</li> </ul>	Rehabilitation and design.	Landscape designer Contractor ER ECO	

		<p>construction commenced, including the road reserve, detours and temporary access routes.</p> <ul style="list-style-type: none"> <li>– All trees removed should be replaced. See list of indigenous vegetation (Appendix A)</li> <li>– Alien vegetation, particularly the Downy thorn apple (<i>Datura innoxia</i>), Wild tobacco (<i>Nicotiana glauca</i>) and Cacti (<i>Opuntia</i> spp.) that has appeared in the project corridor during construction must be eradicated.</li> </ul>			
	Minimise amount of dust created	<ul style="list-style-type: none"> <li>– Regular spraying with suitable dust suppressing agent for dust control during the construction phase</li> </ul>	Regular spraying.	Contractor ER ECO	
<b>NOISE</b>	Minimise and / or mitigate increased noise levels	<ul style="list-style-type: none"> <li>– No Construction should take place after 18h00.</li> <li>– Fit large construction vehicles with silencers</li> <li>– A speed limit of 40 km/hour should be maintained.</li> <li>– No construction workers are allowed to stay on the premises. All workers</li> </ul>	<p>Regular inspection.</p> <p>Contractor to sign agreement.</p>	Developer Contractor	

		except for security members leave the site area at 18h00.			
<b>MANAGEMENT AND MONITORING</b>	Noncompliance with aspects of ESMP.	<ul style="list-style-type: none"> <li>-The ER and ECO shall ensure that all aspects of the ESMP are implemented during construction.</li> <li>-The ECO shall attend regular site inspections and meetings and minutes shall make provision for reporting on every aspect of the ESMP.</li> <li>- The contractor is also responsible for compliance with this EMP by all sub-contractors. Make sure that all sub-contractors have a copy of this EMP and that they understand its contents. Include the EMP in the sub-contracts/agreements with sub-contractors.</li> <li>-The EMP must be available at all site offices.</li> <li>-Management and supervisors must lead by example.</li> </ul>	<p>To ensure that the provisions of the ESMP are implemented during construction.</p> <p>The ECO will report performance to the ER, who, in turn will report this and any issues and concerns to the DEA monthly.</p>	Developer ER Contractors and Sub contractors	
<b>HEALTH AND SAFETY</b>	To ensure health and safety of	-The Contractor shall submit a strategy to ensure the least possible		Contractor Developer	

	<p>workers and the public at all times during construction.</p>	<p>disruption to traffic and potential safety hazards during construction.</p> <ul style="list-style-type: none"> <li>-The strategy should include a schedule of work indicating when and how road crossings (construction at existing intersections) will be made. The schedule should be updated and distributed to all stakeholders.</li> <li>-The Contractor shall also liaise with the traffic authorities for their approval in this regard.</li> <li>-Proper traffic and safety warning signs must be placed at the construction site to the satisfaction of the Engineer and the Roads Authority.</li> <li>-The Contractor must adhere to the regulations pertaining to Health and Safety, including the provision of protective clothing and shoes, failing which the contract may be ended immediately.</li> <li>-Dust protection masks shall be provided to task</li> </ul>		<p>CoW Traffic division</p>	
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		<p>workers if they complain about dust.</p> <ul style="list-style-type: none"> <li>-Potable water must be available to workers to avoid dehydration. At least 5 litres of drinking water per person per day (working hours) should be made available during construction.</li> <li>-The contractor must enforce relevant health and safety regulations for these specific activities.</li> <li>-The contractor should also comply with relevant labour laws as stipulated by the labour Act.</li> </ul>			
<b>MANAGEMENT AND MONITORING</b>	Manage the Estate in a sustainable manner	-Establish a Home owners association and develop an estate management plan	All home owners to subscribe to Home owners Association	Home owners Association	Estate Management Plan
<b>POLLUTION</b>	Prevention of pollution	-Spillages of any potentially toxic materials, whether by accident or through negligence, must be scooped up immediately into waste bags and disposed of at an appropriate disposal site.	Inspection and regular clean up.	Home owners association	
	Prevention of groundwater pollution	-Sewerage lines need to be maintained	Regular inspections of sewerage lines and quarterly reports to	Home owners association ER MAWF	

			MAWF on water quality.		
	Information dissemination to workers	<ul style="list-style-type: none"> <li>–Awareness campaigns.</li> <li>–Literature available.</li> </ul>	Information sessions. Availability of literature.	ER ECO	Awareness materials
<b>WASTE</b>	Effective waste management	<ul style="list-style-type: none"> <li>–Integrated waste.</li> <li>–Management plan to be developed for Residential Estate that addresses recycling, re-use and reduction of waste.</li> <li>–Organic waste should be used for composting.</li> </ul>	Regular inspection. Integrated waste management plan as part of Homeowners Guidelines and rules. Formal agreement on amount of waste to be disposed of.	CoW	
		<ul style="list-style-type: none"> <li>–Any hazardous waste should be disposed of immediately at the Kupferberg site.</li> </ul>	Inspection and regular clean up.	Home owners association ECO	
		<ul style="list-style-type: none"> <li>–All sewage to be collected at the sewerage plant.</li> <li>–All sewerage lines to be inspected for leakage to be cleaned-up.</li> </ul>	Inspection daily.	Home owners association ECO	
<b>EROSION</b>	Prevention of erosion	<ul style="list-style-type: none"> <li>–Special care need to be taken in areas with steep slopes.</li> <li>–Minimise large impermeable areas.</li> <li>–Reno mattresses or gabions should be used to stabilise soil in steep areas.</li> <li>–Adequate, innovative site drainage.</li> </ul>	Regular inspection for signs of erosion. Precautionary measures to be taken. Permits required removing any trees.	ER ECO Home owners association	

		<ul style="list-style-type: none"> <li>-Indigenous vegetation of all species should be left intact as far as possible.</li> <li>-Pebble mulch layer left intact</li> </ul>			
<b>TRACKS AND ROADS</b>	Disturbance to habitats	<ul style="list-style-type: none"> <li>-Do not drive off existing tracks, care must be taken to avoid damage to existing vegetation especially shrubs and trees.</li> <li>-No new access roads will be allowed.</li> <li>-Speed limit of 40 km/hour to be enforced.</li> </ul>	Inspection daily.	Homeowners association	
<b>WATER SUPPLY AND DEMAND</b>	Promote wise use of water resources	<ul style="list-style-type: none"> <li>-Monitoring groundwater resource water level, water quality, and abstraction rates.</li> <li>-Promote wise use of water resources.</li> <li>-Use of water-saving devices in toilets and low-flow showerheads or similar devices.</li> </ul>	Quarterly reports submitted to MAWF on monitoring. Record rainfall data.	Quarterly reports submitted to MAWF on monitoring. Record rainfall data.	Home owners association MAWF and all land owners Namwater CoW
		<ul style="list-style-type: none"> <li>-Water wise gardening.</li> <li>-Use recycled grey water to decrease demand</li> </ul>	<ul style="list-style-type: none"> <li>- Water wise gardening design.</li> <li>- Monitor quality of grey water.</li> <li>- Reports to MAWF every 3 months.</li> </ul>	Landscape designer Home owners association	

<b>ENERGY CONSUMPTION</b>	Energy efficient	<ul style="list-style-type: none"> <li>-Use renewable energy sources.</li> <li>-Awareness campaigns on energy efficiency.</li> </ul>	<ul style="list-style-type: none"> <li>- Develop Energy Management plan as part of Homeowners guidelines and rules that address the reduction of energy use.</li> </ul>	Homeowners association ECO Engineers Architect	
<b>VEGETATION</b>	Preservation of indigenous vegetation	<ul style="list-style-type: none"> <li>-No tree felling, wood gathering, burning, harvesting, or damaging to any plant species.</li> </ul>	<ul style="list-style-type: none"> <li>- Regular inspection.</li> <li>- Remove any alien vegetation immediately.</li> </ul>	Homeowners association ECO	
	Conservation of biodiversity	<ul style="list-style-type: none"> <li>-No development should be allowed within the main drainage line area.</li> <li>-Conserve all indigenous species</li> </ul>	<ul style="list-style-type: none"> <li>- Integrated Conservation Management plan as part of Homeowners Guidelines and Rules.</li> <li>- Develop a policy regarding the keeping of pets.</li> </ul>	Homeowners association ECO	
<b>BIODIVERSITY</b>	Preservation of biodiversity	<ul style="list-style-type: none"> <li>-No hunting, trapping, setting of snares or any other disturbance of any fauna species.</li> <li>-Bird species should be conserved by identifying nesting areas and important habitats development to be restricted there. Limit</li> </ul>	<ul style="list-style-type: none"> <li>- Inspections daily</li> <li>- Incorporated into management plan</li> <li>- Provision of literature to increase awareness to staff and guests</li> <li>- Regular inspections</li> <li>- Provision of literature to increase</li> </ul>	Homeowners association ECO	

		<p>recreation activities at important bird areas.</p> <ul style="list-style-type: none"> <li>-Restriction on numbers of pets is very important for biodiversity.</li> <li>-Fence should allow for movement of smaller mammals.</li> </ul>	<p>awareness to staff and guests</p>		
<b>VISUAL IMPACTS</b>	<p>Minimise degradation of landscape qualities</p>	<ul style="list-style-type: none"> <li>-Building and Design guidelines and rules name examples of what it should be specified in the Home Owners' guidelines e.g. washing lines, colours of buildings, type of building materials etc.</li> </ul>	<ul style="list-style-type: none"> <li>- Homeowners' guidelines and rules</li> </ul>	<p>Home owners association Design Team Architect</p>	
<b>SOCIO ECONOMIC ISSUES</b>	<p>Minimise visual impact</p>	<ul style="list-style-type: none"> <li>-Green architecture and design.</li> <li>-Preserve skyline.</li> <li>-Avoid high bulk residential development.</li> <li>-Avoid monotonous designs and rather follow the contours of the surrounding landscape, thus creating a visual flow.</li> <li>-Avoid the use of highly reflective glass.</li> </ul>	<ul style="list-style-type: none"> <li>- Each Developer to have a set of design and building guidelines and individual erf owners to stick to the guidelines.</li> </ul>	<p>Homeowners Association</p>	
	<p>Create recreational areas</p>	<ul style="list-style-type: none"> <li>-Reserve open space and green corridors</li> <li>-Maintain hiking and cycling paths along green corridors</li> </ul>	<ul style="list-style-type: none"> <li>- Homeowners association to adopt open spaces and green corridors</li> </ul>	<p>Urban Design Team Homeowners Association</p>	

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## 6.6 OPERATIONAL PHASE

ISSUE TO BE MONITORED	WHAT NEEDS TO BE MONITORED	MONITORING FREQUENCY	BY WHO?
Water quality	Quality of water provided to Extension 4	Once every three months	Homeowners Association in collaboration with Ministry of Water Affairs or Namwater
Water sustainability	Water demand	Once in three months	CoW Planning, Urbanisation & Environment division Namwater
Sewerage system	Sewerage lines and sewerage plant for leakages.	Once a month	CoW Planning, Urbanisation & Environment division Homeowners Association
Erosion / Situation	Monitor soil erosion rates Slope stability in steeper areas. Situation of drainage lines.	Once in three months	Homeowners Association
Indigenous trees	Any damage to trees.	Regularly	Homeowners Association
Alien invasives	Recording of different species. Removal of unwanted species.	Once every three months	Homeowners Association
Implementation of mitigation plan	Ensure compliance with the mitigation plan. Apply corrective measures immediately where required.	Once every three months	Homeowners Association

## APPENDIX RECOMMENDED PLANT LIST

TREES	
SCIENTIFIC NAME	COMMON NAME
<i>Acacia karroo</i>	Sweet thorn/Soetdoring
<i>Acacia erioloba</i>	Camel Thorn/Kameeldoring
<i>Acacia erubescens</i>	Yellow-bark Acacia/Withaak
<i>Acacia hereroensis</i>	Mountain Thorn/Berg doring
<i>Acacia sieberana</i>	Paper bark Acacia
<i>Albizia anthelmintica</i>	Worm cure albizia/
<i>Boscia albitrunca</i>	Shepherd's tree/Witgat
<i>Combretum erythrophyllum</i>	Bush willow/Rivier vaderlands wilg
<i>Dombeya rotundifolia</i>	Wild pear/Wilde peer
<i>Kirkia acuminata</i>	White seringa/Wit sering
<i>Mundulea sericea</i>	Cork Bush/Kurkbos
<i>Olea europeae</i>	Olive/Olien
<i>Ozoroa crassinervia</i>	Namibian Resin tree/ Namibiese harpuisboom
<i>Ozoroa paniculosa</i>	Common Resin bush/ Harpuisboom
<i>Pappea capensis</i>	Jacket plum/Doppruim
<i>Peltophorum africanum</i>	Weeping wattle/Huilboom
<i>Searsia lancea</i>	Karee
<i>Searsia marlothii</i>	Bitter Karee

<i>Searsia pendulina = vernalis</i>	White karee/Wit karee
<i>Ziziphus mucronata</i>	Buffalo Thorn/Blinkblaarwag-n-bietjie
SHRUBS	
SCIENTIFIC NAME	COMMON NAME
<i>Barleria spp.</i>	Bush violet/Bosviooltjie
<i>Bauhinia galpinii</i>	Pride of the Cape
<i>Carissa macrocarpa</i>	Big Num Num
<i>Croton gratissimus</i>	Lavender Feverberry
<i>Cyphostemma currori</i>	Kobas
<i>Dichrostachys cinerea</i>	Kalahari Christmas Tree
<i>Ehretia alba</i>	Puzzle bush/Deurmekaar bos
<i>Gardenia volkensii</i>	Savanna gardenia /bosveld katjiepiering
<i>Grewia flava</i>	Raisin bush
<i>Leonotis leonurus</i>	Wild dagga
<i>Polygala virgata</i>	Purple broom bush
<i>Sutherlandia frutescens</i>	Cancer bush
<i>Tarchonanthes camphoratus</i>	Camphor bush
<i>Rhigozum obovatum</i>	Yellow pomegranate
HERBACEOUS PERENNIALS	
<i>All indigenous Aloe species</i>	
<i>Bulbine capitata</i>	Scented grass bulbine
<i>Kleinia longiflora</i>	Sambokbossie