

## **Annexure L – Environmental Management Programme**

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# **Environmental Management Programme**

**FOR THE**

**PROPOSED PENTAGON BUSINESS AND RESIDENTIAL  
DEVELOPMENT (PBRD) IN LYDENBURG, MPUMALANGA PROVINCE**

## **TITLE PAGE**

**PROJECT TITLE:** Environmental Management Programme

**PREPARED FOR:** KHS Construction and General Trading (Pty) Ltd  
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**SUBMITTED TO:** Ms. Robyn Luyt  
Department of Agriculture, Rural Development, Land and Environmental Affairs  
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Mpumalanga Province

**SUBMISSION DATE:** September 2020

**REPORT STATUS:** DRAFT

**PREPARED BY:** Philo Environmental Management CC  
16A Samora Machel Street, Middelburg, 1050

**APPROVED BY:** Ms Sindiswa Sethodi (Pr.Sci.Nat)



Director

## **DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)**

Philo Environmental Management was appointed by the Applicant (KHS Construction and General Trading Pty Ltd) as the Environmental Assessment Practitioner (EAP) to compile this Environmental Management Programme (EMPr). Table 1 below shows the contact details of the EAP consultants who compiled this EMPr.

**Table 1: Details of the EAP**

<b>Name of company</b>	<b>Philo Environmental Management CC</b>
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EAP of the project	
Name	Qualifications
Ms. Sindiswa Setlhodi	N Diploma: Environmental Management (TUT).
	B-Tech: Environmental Management (TUT)
	SACNASP: Professional Natural Scientist (40087/07)
	17 years" experience as an environmentalist

## **DECLARATION BY THE APPLICANT**

I the undersigned in my capacity as designated below to hereby declare to ensure that the conditions and recommendations of the EMPr for the township development of the Pentagon Business and Residential Development in Lydernburg during pre –construction, construction and operation are implemented and assume responsibility and accountability in this respect.

I further understand that the authorities may during any phase of the project, conduct an inspection of the development in order to ensure compliance with the conditions and recommendations in the EMPr.

**KHS Pty Ltd**

Name \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

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## **1. ENVIRONMENTAL MANAGEMENT PROGRAMME**

### **1.1 General**

“Environmental Management Programme”: is a plan or programme that seeks to achieve a required end state and describes how activities that could have an adverse impact on the environment, will be mitigated, controlled, and monitored.

The EMPr will address the environmental impacts during the pre-construction, construction and operational phases of a project. Due regard must be given to environmental protection during the entire project. In order to achieve this, a number of environmental specifications/recommendations are made. These are aimed at ensuring that the contractor maintains adequate control over the project in order to:

- Minimise the extent of impact during construction.
- Ensure appropriate restoration of areas affected by construction.
- Prevent long term environmental degradation.

The contractor must be made aware of the environmental obligations that are stipulated in this document, and declares him/her to be conversant of all relevant environmental legislation. The contractor should also be aware that the KHS Pty Ltd Manager / Environmental Control Officer (ECO) will monitor the implementation of the EMPr.

### **1.2 Objectives of EMPr**

The EMPr has the following goals:

- Identifying those construction activities that may have detrimental impact on the environment;
- Detailing the mitigation measures that will need to be taken, and the procedures for their implementation;
- Establishing the reporting system to be undertaken during all phases of the project.

The EMPr also serves to highlight specific requirements that will be monitored during the development and should the environmental impacts not have been satisfactorily prevented, or

mitigated, corrective action will have to be taken. The document should, therefore, be seen as a guideline that will assist in minimising the potential environmental impact of activities.

Mitigation seeks to find better ways of doing things by the implementation of practical measures to reduce, limit, and eliminate adverse impacts and protect public and individual rights.

The EMPr also defines the arrangements that will be put in place to ensure that the mitigation measures are implemented by including recommendations of the roles and responsibilities of the project proponent, environmental management team and contractors.

### **1.3 Components of the “EMPr”**

#### **1.3.1 Introduction**

The purpose of this EMPr is to draft and maintain a detailed management plan that will effectively prevent/minimise environmental degradation.

#### **1.3.2 Roles and Responsibilities**

Monitoring is important in the implementation of an EMPr. Consequently, it is important that the implementation of the mitigation measures of this EMPr are adhered to by contractors and its adherence is monitored by an independent ECO. All of the issues described and discussed in this document will require monitoring, and it will be the responsibility of KHS Pty Ltd to undertake this monitoring according to the specifications of this EMPr:

- To appoint an independent ECO during the both pre – construction and construction phases.
- To draft and implement a monitoring programme in order assess the compliance with EMPr.
- To undertake the monitoring of EMPr during the all phases of the project.

Any identified or encountered non- compliances must be reported to KHS Pty Ltd management so that appropriate action may be taken to rectify the situation.

### **1.3.3 Appointment of an ECO**

ECO should be appointed to ensure that the mitigation measures and other requirements set forth in the EMPr are adhered to during the pre – construction and construction phase of the project. The following guidelines apply to the functions of an ECO:

- The ECO will conduct site inspections regularly to supervise environmental actions associated with pre – construction and construction activities.
- Importantly, the ECO should be able to understand, interpret, monitor, audit and implement the EMPr.
- The ECO is responsible for explaining the contents of the EMPr to the contractors, site staff, supervisors as well as the Interested and affected Parties (IAP).
- The ECO must then provide EMPr audit feedback to KHS Pty Ltd and Contractors.

### **1.3.4 Failure to comply with EMPr**

Outlined below are a number of steps, relating to increasing severity of environmental problems, which will be implemented. The principle is to keep as many issues within the first few steps as possible.

- Step 1: The ECO discusses the problem with the guilty party, come up with a solution together, keeping all records of the discussion and the implemented solution.
- Step 2: KHS Pty Ltd will observe a more serious violation and notifies the guilty party in writing in terms of when the failures should be rectified.

### **1.3.5 Environmental Register**

The contractor is responsible for:

- Reporting environmental complaints and correspondence received from the public to the Project Manager or ECO
- Reporting environmental incidents involving contractor employees and the public.
- Reporting incidents that cause harm or may cause harm to the environment
- Keeping record of all hazardous materials used on site.

- Maintain a record of all hazardous waste disposals and the location of the site to which such waste was disposed of.

The reports containing all the environmental incidents recorded and environmental register will be available and kept with the EMPr to be monitored by the ECO.

### **1.3.6 Documentation and Reporting**

In order to record the compliance with EMPr, the following documentation must be kept on site by the ECO:

- Monitoring Results
- Record of Complaints
- Notification of Emergencies and Incidents
- Any other documentation as required by the Record of Decision

As well, the Contractor shall ensure that all records of spills, pollution incidents, spot fines, training details are copied to the ECO for his/her records and be open for inspection by the ECO.

### **1.3.7 Public Communication and Liaison with I&APs**

KHS Pty (Ltd) must ensure that the public and surrounding communities are informed and updated throughout the construction phase and even when specific issues arise. In addition, the manager should decide on the appropriate method of communication to be used with I&APs. An appropriate sign or notice should be placed around the site to inform the public about the construction taking place. The boards should include:

- The name of the project and company [KHS Pty (Ltd)]
- The name and contact details of the site representative to be contacted in the event of complaints or emergencies.

## **2. DESCRIPTION OF MITIGATION MEASURES**

This section of the report helps to recommend mitigation measures to reduce, limit, and eliminate environmental impacts to acceptable/insignificant levels. The practical implications of performing these mitigation measures must be prepared. Also, the conditions of the EMPr must be communicated to the contractors prior to the commencement of construction.

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**Table 2: EMPr action plan.**

Activity/Impact	Mitigation measures	Responsible party	Frequency
<b>Pre – Construction Phase</b>			
EMPr Training	The Contractor shall arrange dates for Environmental Awareness and Training programmes for all site personnel, to the satisfaction of the KHS Pty Ltd and ECO, so that employees are familiarised with the contents of this EMPr.	ECO, Contractor	Bi-annually
Contact areas	The ECO must indicate to contractors the areas that they will have in their possession for the duration of the contract i.e. this shall include access roads to be used, construction lay-down areas, materials storage and delivery requirements, contractors offices and operational demarcation. Aspects pertaining to temporary housing for persons involved in the project will also be included. Adequate sanitary facilities and ablutions on the servitude must be provided for all personnel throughout the project area.	ECO and KHS Pty (Ltd) manager	Continuous
Sensitive areas	Prior to the start of construction, the proposed site and roads must be inspected in order to point out or demarcate all ecologically “sensitive” areas to the contractors such as rivers, streams, drainage lines, wetlands, sensitive soils, steep slopes and areas susceptible to erosion.	ECO, Contractor and KHS Pty (Ltd) manager	Once-off

Adjacent area	Wetland	Those areas of the wetland buffer that encroach into the proposed development footprint must be made visible to those individuals making use of the proposed development. This can be done by packing white painted rocks along the wetland buffer to ensure that unwanted activities do not take place within this area. The rocks will indicate the extent of the no-go area while allowing humans and animals to still make use of the wetland;		
Roads		The final alignment of the access routes and construction camp roads shall be planned in conjunction with the KHS Pty Ltd managers and ECO thus finalised, only the agreed roads must be used.	ECO contractor	and Once-off
Contractor Accommodation		Construction camps and staff accommodation facilities on the site will be required to be placed in appropriate locations prior to the commencement of construction, preferably within already disturbed areas. After completion of the contract, these areas will be required to be rehabilitated.	ECO Contractor	and Continuous
Materials, handling and use		<p><b>Safety:</b></p> <p>All the necessary handling and safety equipment required for the safe use of petrochemicals and oils shall be provided by the Contractor. Contractor must comply with the Occupational Health and Safety Act (Act 85 of 1993) and Construction Regulations, 2003 as this governs what the contractor has to do or provide for his staff.</p> <p><b>Hazardous Material Storage:</b></p> <ul style="list-style-type: none"> <li>Petrochemicals, oils and identified hazardous substances shall only be stored under controlled conditions in bunded areas.</li> </ul>	ECO Contractor	and Continuous

	<ul style="list-style-type: none"> <li>• All hazardous materials will be stored in a secured appointed area that is fenced and has restricted entry.</li> <li>• Storage of hazardous products shall only take place using suitable containers approved by the ECO.</li> <li>• Material safety data sheets indicating the nature of the stored materials shall be displayed on the storage facility or containment structure.</li> <li>• Contractors shall have spill kits available on site prior to construction to clean – up any spillage.</li> </ul>	
Materials, handling and use	<p><b>Fuels and Gas Storage:</b></p> <ul style="list-style-type: none"> <li>• Fuel should be stored in a secure area in a steel tank supplied and maintained by the contractor according to safety procedures.</li> <li>• Gas welding cylinders and LPG cylinders should be stored in a secure, well-ventilated and bunded area.</li> <li>• The contractor must supply sufficient fire fighting equipment for in case any fire accident, and strictly no smoking will be allowed where fuel is stored and used.</li> </ul> <p>The site will have designated smoking areas.</p>	ECO and Contractor
Water supply	<ul style="list-style-type: none"> <li>• Water supply pipelines shall be according to the engineer specifications.</li> <li>• Indicated to contractors where they can obtain water for mixing of cement as well as for drinking.</li> <li>• Contractors shall not collect water from any other source than those pointed</li> </ul>	ECO, KHS Pty Managers (Ltd) and Contractor

		Construction Phase	
Vehicular access and movement of construction vehicles/heavy machinery	<ul style="list-style-type: none"> <li>Existing routes should be used as far as possible.</li> <li>Construction approved vehicle turning areas must avoid selected ecological sensitive areas or species, and have turning area routes approved by the ECO.</li> </ul>	ECO Contractor	and Continuous
Movement of construction personnel, labourers and equipment	<p>All machinery and equipment should be inspected regularly for faults and possible leaks, these should be serviced off-site;</p> <ul style="list-style-type: none"> <li>The Contractor must make sure that all construction personnel, labourers and equipment remain within the demarcated construction sites at all times.</li> </ul>	Contractor	Continuous
Vegetation	<ul style="list-style-type: none"> <li>Only trees and shrubs within the construction site must be cleared.</li> <li>All alien invasive plant should be removed from the site to prevent further invasion</li> <li>Collection of firewood and traditional medicinal plants is strictly prohibited. No fires should be allowed.</li> </ul>	ECO Contractor	and Continuous
Protection of fauna	<ul style="list-style-type: none"> <li>The Contractor and his employees shall not bring any domesticated animals onto the site.</li> <li>The Contractor shall ensure that the work site be kept clean, tidy and free of rubbish that would attract animals.</li> </ul>	ECO Contractor	and Continuous

	<ul style="list-style-type: none"> <li>No termite mounds should be intentionally destroyed. Any lizards, geckos, agamids, monitors or snakes encountered should be allowed to escape to a suitable habitat away from the disturbance;</li> </ul> <p>Educational programmes for the contractor's staff must be implemented to ensure that project workers are alerted to the possibility of snakes being found during vegetation clearance. The construction team must be briefed about the management of snakes in such instances. In particular, construction workers are to go through courses to ensure that threatened snakes, such as pythons, are not killed or persecuted when found.</p>		
Erosion control	<ul style="list-style-type: none"> <li>The Contractor shall protect all areas susceptible to erosion with appropriate measures approved by the ECO.</li> <li>Storm water drainage measures are required on site to control runoff and prevent erosion.</li> <li>Vegetation removal should be done when construction is about to begin and preferably during the drier months.</li> </ul> <p>Disturbed areas of natural vegetation as well as cut and fills must be rehabilitated immediately to prevent soil erosion.</p>	ECO Contractor	and Continuous
Access roads	<ul style="list-style-type: none"> <li>Construction staff may only use authorised paths and roads.</li> <li>The proclaimed speed limit along the access road must be strictly adhered to.</li> <li>Construction roads must follow existing roads and tracks and should not be</li> </ul>	ECO Contractor	and Continuous

	wider than necessary with a maximum width of 3 m.		
Soil stripping and stockpiling	<p>The first 300 mm of soil must be stockpiled separate from the soil excavated deeper than 300 mm.</p> <ul style="list-style-type: none"> <li>All stockpiles must be protected from erosion, stored on flat areas where runoff will be minimised, and be surrounded by bunds.</li> </ul>	ECO Contractor	and
Stockpiling, handling and storage of building materials	<ul style="list-style-type: none"> <li>Stockpiles and storage yards will be demarcated in areas where they will cause minimal disturbance.</li> <li>Stockpiles of expensive materials such as cement bags should be such that they can easily be removed from the site over weekends or during rainy weather.</li> <li>Clearly indicate which activities are to take place in which areas within the site such as mixing of cement, stockpiling of materials.</li> </ul>	ECO Contractor	and Continuous
Solid waste management	<ul style="list-style-type: none"> <li>An adequate number of refuse bins/waste bins must be provided at the construction sites and at the construction camps. All rubble generated must be removed from site.</li> <li>The Contractor will ensure that all personnel immediately deposit waste in the waste bins provided and ensure waste separation, recycling should also be supported.</li> <li>All waste must be transported in an appropriate manner to appropriate land fill sites.</li> </ul>	ECO Contractor	and

		<ul style="list-style-type: none"> <li>The contractor will maintain „good housekeeping“ practises as ensure that all work sites and construction camp are kept tidy and litter free.</li> </ul>		
Storm management	water	<p>No dumping of construction material on site may take place.</p> <ul style="list-style-type: none"> <li>Stormwater measures and structures must be implemented to adequately manage storm events. These structures are assumed to be appropriate and for the demands of the project</li> </ul>		
Noise		<ul style="list-style-type: none"> <li>Noise-generating activities associated with construction activities must be kept to a minimum.</li> <li>Compliance with the appropriate legislations and regulations regarding the generation of noise should be complied with.</li> <li>Working hours should be 07:00am to 17:00pm</li> </ul>	ECO Contractor	and Continuous
Visual		<ul style="list-style-type: none"> <li>Construction camps must be placed in appropriate locations before the commencement of construction activities.</li> <li>Camps, offices must be maintained in an orderly and proper condition.</li> <li>No littering of the site.</li> </ul>	ECO Contractor	and Continuous
Dust		<ul style="list-style-type: none"> <li>Dust suppression shall be applied where necessary.</li> </ul>	ECO Contractor	and Continuous
Heritage Impact		<ul style="list-style-type: none"> <li>Obtain permit from SAHRA for demolishing of heritage artifacts found on site</li> </ul>	KHS Pty (Ltd) Managers	Before construction commence

Operation phase						
					KHS Pty (Ltd)	Continuous Managers
Waste	<ul style="list-style-type: none"> <li>Generated waste will be stored in waste separation bins and be transported to a registered landfill site. This will be taken over by TLCM.</li> </ul>					
Sanitation Management	<ul style="list-style-type: none"> <li>This will be taken over by TLCM.</li> </ul>				KHS Pty (Ltd)	Managers
Fire Prevention and Control	<ul style="list-style-type: none"> <li>The Contractor shall ensure that there is basic fire-fighting equipment available on site as per requirement of the local Emergency Services.</li> <li>Any accidental fires that may occur shall be reported to the KHS Pty (Ltd) Environmental Manager immediately and then to the relevant authorities.</li> </ul>				KHS Pty (Ltd)	Managers and Contractor
Adjacent wetland area	<ul style="list-style-type: none"> <li>Signs must be erected along the indicated buffer zone warning against unwanted anthropogenic activities, including dumping, construction and laydown yards.</li> <li>The manager or any other responsible individual at the Residential and Business Development must be tasked with reporting any sudden bad smells from the wetland that might indicate leaks or bursts as well as any leaking pipes in general.</li> </ul>					
Site clean-up and rehabilitation	<ul style="list-style-type: none"> <li>The Contractor must ensure that all temporary structures, materials, waste and facilities used for construction activities are removed upon completion of the project before the beginning of operation.</li> </ul>				KHS Pty (Ltd)	Managers and Contractor

	<ul style="list-style-type: none"><li>• Any exposed earth should be rehabilitated promptly by planting suitable vegetation (vigorous indigenous grasses) to protect the exposed soil;</li></ul> <p>A rehabilitation plan for vegetation should be in place and implemented.</p>	
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### **3. MONITORING OF EMPr IMPLEMENTATION**

The proper and effective implementation of impact mitigation measures in order to reduce adverse impacts on environmental conditions needs to be taken into consideration by a proper monitoring programme. Monitoring of the general implementation and compliance to the EMPr is the responsibility of the ECO, while reporting on compliance to contractors should be done during scheduled site meetings. In the monitoring programme, a list of environmental issues addressed in the EMPr will be drawn up, with a tick box which makes provision for compliance or non-compliance to the EMPr requirements for each environmental issue.

### **4. CONCLUSION**

The function of this EMPr is to provide all contractors on site with effective measures for managing or minimizing negative environmental impacts of the proposed development of PBRD during its lifetime from pre-construction phase, construction phase until its operational phase.