

ENVIRONMENTAL MANAGEMENT PLAN (EMP)

PROPOSED NEW ACCESS ROADS ON NEW PORTIONS 220 & 193 OF THE REMAINDER OF FARM AUSSENKEHR NO.147 AND THE SUBDIVISION OF THE REMAINDER OF FARM AUSSENKEHR NO.147 INTO PORTION 201 AND REMAINDER



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1. INTRODUCTION AND BACKGROUND

This Environmental Management Plan (EMP) serves as a managing tool for the proposed construction and operations of new access roads on portions 193 and 220; and the subdivision of Remainder of farm Aussenkehr No. 147 into portion 201, in Aussenkehr, //Kharas Region. The EMP is developed to outline measures to be implemented in order to minimise adverse environmental degradation associated with this development.

The EMP serves as a guiding tool for the contractors and workforce on their roles and responsibilities concerning environmental management on site, and also provides an environmental monitoring framework for all project phases of the development. This environmental management plan aims to take a pro-active route by addressing potential problems before they occur. The EMP acts as a stand-alone document, which can be used during the various phases of the development.

In this report,

- a) the **Contractor** (its sub-contractors) refers to construction personnel responsible for the *construction and maintenance activities* of the project sites.
- b) the **Proponent** refers to Aussenkehr Farms (Pty) Ltd, its employees and staff responsible for the *operation activities* of the project.

The purpose of the EMP is to:

- ✓ Train employees and contractors with regard to environmental obligations.
- ✓ Promote and encourage good environmental management practices.
- ✓ Outline responsibilities and roles of Aussenkehr Farms (Pty) Ltd and the contractor in managing the environment.
- ✓ Describe all monitoring procedures required to identify environmental impacts.
- ✓ Minimise disturbance of the natural environment.
- ✓ Develop waste management practices.
- ✓ Prevent all forms of pollution.
- ✓ Protect the natural environment.
- ✓ Prevent soil and water erosion.
- ✓ Comply with all applicable laws, regulations and standards for environmental protection.

2. LEGISLATIVE FRAMEWORK

A. The Namibian Constitution

The Namibian Constitution has a section on principles of state policy. These principles cannot be enforced by the courts in the same way as other sections of the Constitution. But they are intended to guide the Government in making laws which can be enforced.

The Constitution clearly indicates that the state shall actively promote and maintain the welfare of the people by adopting policies aimed at management of ecosystems, essential ecological processes and biological diversity of Namibia for the benefit of all Namibians, both present and future.

B. Environmental Management Act No.7 of 2007

This Act provides a list of projects requiring an Environmental assessment. It aims to promote the sustainable management of the environment and the use of natural resources and to provide for a process of assessment and control of activities which may have significant effects on the environment; and to provide for incidental matters.

The Act defines the term “*environment*” as an interconnected system of natural and human-made elements such as land, water and air; all living organisms and matter arising from nature, cultural, historical, artistic, economic and social heritage and values.

The Environmental Management Act has three main purposes:

- (a) to make sure that people consider the impact of activities on the environment carefully and in good time
- (b) to make sure that all interested or affected people have a chance to participate in environmental assessments
- (c) to make sure that the findings of environmental assessments are considered before any decisions are made about activities which might affect the environment.

Line Ministry: Ministry of Environment and Tourism

C. Water Resources Management Act of Namibia (2004) (Guideline only)

The Water Resource Management Act (2004) has been promulgated but not yet implemented as the regulations are still being drafted. This act repealed the existing South African Water Act No.54 of 1956 which was used by Namibia, however the Act describes procedures and stipulations which are much more stringent than those contained in the Water Amendment Act.

This Act ensures that Namibia’s water resources are managed, developed, protected, conserved and used in ways which are consistent with fundamental principles depicted in section 3 of this Act. Part IX regulates the control and protection of

groundwater resources. Part XI, titled Water Pollution Control, regulates discharge of effluent by permit.

Line Ministry: Ministry of Agriculture, Water Affairs and Forestry

D. Water Act No. 54 of 1956

This Act provides for Constitutional demands including pollution prevention, ecological and resource conservation and sustainable utilisation. In terms of this Act, all water resources are the property of the State and the EIA process is used as a fundamental management tool.

A water resource includes a watercourse, surface water, estuary or aquifer, and, where relevant, its bed and banks. A watercourse means a river or spring; a natural channel in which water flows regularly or intermittently; a wetland lake or dam, into which or from which water flows; and any collection of water that the Minister may declare to be a watercourse. Permits are required in terms of the Act for the undertaking of the following activities relevant to the proposed project:

- Discharge of waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit in terms of Section 21 (f); and
- Disposal of waste in a manner that may detrimentally impact on a water resource in terms of Section 21 (g).

E. The Draft Wetland Policy (1993)

The Policy requires that any wetlands and its associated hydrological functions form a part, to be managed in such a way that their biodiversity, vital ecological functions and life support systems are protected for the benefit of present and future generations.

F. Sewerage and Drainage Regulations (amendments) Local authorities act, section 23 (1992)

The regulations make provision for proper construction of pipelines in drainage lines. The regulations also stipulate the prevention of pollution and environmental damage caused by improper construction of sewerage and water pipelines in drainage lines.

G. Soil Conservation Act (No.76 of 1969)

The Act advocates for the Prevention and combating of soil erosion, conservation, improvement and manner of use of soil and vegetation, and protection of water resources.

Line Ministry: Ministry of Environment and Tourism

H. Draft Pollution Control and Waste Management Bill

The proposed development only applies to Parts 2 and 8 of the Bill.

Part 2 stipulates that no person shall discharge or cause to be discharged any pollutant to the air from a process except under and in accordance with the provisions of an air pollution licence issued under section 23. It further provides for procedures to be followed in licence application, fees to be paid and required terms of conditions for air pollution licences.

Part 8 calls for emergency preparedness by the person handling hazardous substances, through emergency response plans.

I. Environmental Assessment Policy of Namibia (1995)

Environmental Assessments (EA's) seek to ensure that the environmental consequences of development projects and policies are considered, understood and incorporated into the planning process, and that the term ENVIRONMENT (in the context of IEM and EA's) is broadly interpreted to include biophysical, social, economic, cultural, historical and political components.

Line Ministry: Ministry of Environment and Tourism

Apart from the requirements of the Environmental Assessment Policy, the following sustainability principles need to be taken into consideration, particularly to achieve proper waste management and pollution control:

✓ Cradle to Grave Responsibility

This principle provides that those who manufacture potentially harmful products should be liable for their safe production, use and disposal and that those who initiate potentially polluting activities should be liable for their commissioning, operation and decommissioning.

✓ Precautionary Principle

There are numerous versions of the precautionary principle. At its simplest it provides that if there is any doubt about the effects of a potentially polluting activity, a cautious approach should be adopted.

✓ The Polluter Pays Principle

A person who generates waste or causes pollution should, in theory, pay the full costs of its treatment or of the harm, which it causes to the environment.

✓ Public Participation and Access to Information

In the context of environmental management, citizens should have access to information and the right to participate in decisions making.

J. Atmospheric Pollution Prevention Ordinance of Namibia No. 11 of 1976)

The Ordinance prohibits anyone from carrying on a scheduled process without a registration certificate in a controlled area. A certificate must be issued if it can be

demonstrated that the best practical means are being adopted for preventing or reducing the escape into the atmosphere of noxious or offensive gases produced by the scheduled process. Best practice would be to notify the line Ministry about emissions but it is not a legal requirement.

Line Ministry: Ministry of Health and Social Services

K. Hazardous Substances Ordinance No. 14 of 1974

The Ordinance applies to the manufacture, sale, use, disposal and dumping of hazardous substances, as well as their import and export and is administered by the Minister of Health and Social Welfare. Its primary purpose is to prevent hazardous substances from causing injury, ill-health or the death of human beings.

Line Ministry: Ministry of Health and Social Services

3. ENVIRONMENTAL MANAGEMENT PLAN

3.1 Responsibilities for Environmental Management

Aussenkehr Farms (Pty) Ltd will be responsible for environmental control on site during the construction and operational phase. It is very important a pre-construction briefing meeting be held to reach an agreement on specific roles of various parties and penalties for non-compliance.

3.2 Training and Induction

Aussenkehr Farms (Pty) Ltd is bound to be responsible for ensuring that environmental awareness education of all employees and contractors is done satisfactorily. The proponent should ensure that employees and contractors are made aware of the environmental requirements of the project.

The EMP should form part of the Terms of Reference for all contractors, sub-contractors and suppliers. All contractors, sub-contractors and suppliers will have to sign an agreement to assure that they understood the EMP and that they will comply. All senior staff should familiarise themselves with the full contents of the EMP and its implications. Senior staff is expected to train and assist the rest of the employees on the contents of the EMP.

3.3 Environmental Incident Reporting

All environmental incidents occurring at the project sites must be recorded. The incident report must include time, date, location, and nature of the incident, extent of the incident, actions taken, and personnel involved.

All complaints received from the neighbouring community should be directed to the manager of Aussenkehr Farms (Pty) Ltd. Management should be able to respond to the complainant within a week (even if pending further investigation).

3.4 Environmental Monitoring

Periodic environmental monitoring must be taken on a regular basis. Monitoring should be done in order to ensure compliance with all aspects of the EMP. Findings should be liaised with to all responsible officers as chain command.

3.5 EMP Administration

Copies of this EMP shall be kept at the site office and should be distributed to all senior staff members, including those of the contractors.

3.6 EMP Amendments

The EMP amendments can only be made with the approval of the DEA. Amendments to the EMP should be liaised to all employees and contractors.

3.7 Non compliance of the EMP

Problems may occur in carrying out mitigation measures or monitoring procedures that could result in non-compliance of the EMP. The responsible personnel should encourage staff to comply with the EMP, and address acts of non-compliance and penalties.

3.8 Environmental Control Officer

The Environmental Control Officer for the project can be an independent environmental consultant (e.g. Matrix Consulting Services) appointed by Aussenkehr Farms (Pty) Ltd to monitor and review the on-site environmental management and implementation of this EMP.

3.9 Site Management

Areas outside this designated working zones shall be considered “no go” areas.

3.9.1 Access routes and work sites

Vehicular movement, construction vehicles and equipment shall access the construction site from the C13 main road (via the existing access roads to the site). No new tracks or roads shall be established and only existing roads may be used. Work sites shall be clearly demarcated and road signs erected were needed. The general public should not have unauthorised or uncontrolled access to the project sites during both construction phase.

Vehicle access will be limited to specific entrance (where necessary) to facilitate control. The entrance will be manned during the operation hours, but will be locked during non-operational hours to prevent unauthorised entry.

A notice board, in two languages or more, must be erected at the entrance and must state the most pertinent site health and safety issues, the operator/responsible person and emergency telephone numbers. Suitable

signs must also be erected on the approach roads and on-site, to direct drivers and to control speed.

Furthermore, on-going controls, such as fencing and policing, must be implemented.

3.9.2 Fire and safety management

Aussenkehr Farms (Pty) Ltd. together with contractors shall take all reasonable measures to avoid increasing the risk of fire and shall ensure that there is sufficient fire-fighting equipment on site at all times.

All contractors shall take all reasonable measures and active steps to avoid increasing the risk of fire through activities on all project sites and prevent the accidental occurrence or spread of fire; and shall ensure that there is sufficient fire-fighting equipment on site at all times. This equipment shall include fire extinguishers.

3.9.3 Staff management

The contractor must ensure that their employees have suitable personal protective equipment and properly trained in fire fighting and first aid.

3.9.4 Waste management

The developer shall remove all waste off-site to designated waste disposal sites. Sufficient bins or containers on-site to store any solid or liquid waste produced should be provided by Aussenkehr Farms (Pty) Ltd. The bins and containers should be weatherproof and scavenger-proof.

3.9.5 Cement and concrete batching

The contractor is advised that cement and concrete are regarded as materials that are potentially damaging to the natural environment on account of the very high pH of the material, and the chemicals contained therein. The contractor shall ensure that all operations that involve the use of cement and concrete are carefully controlled. Concrete mixing shall only take place in agreed specific areas on site.

Water and slurry from concrete mixing operations shall be contained to prevent pollution of the ground surrounding the mixing points. Old cement bags shall be placed in wind and spill proof containers as soon as they are empty. The contractor shall not allow closed, open or empty bags to lie around the site.

Where exposed aggregate finishes are specified the contractor shall collect all cement-laden water and store it in conservancy tanks for disposal off site at an approved disposal site.

All visible remains of excess concrete shall be physically removed immediately and disposed of as waste. Washing the visible signs into the ground is not acceptable. All excess aggregate shall also be removed.

All excess concrete shall be removed from site on completion of concrete works and disposed of. Washing of the excess into the ground is not allowed. No cement or concrete laden water will be permitted to be drained directly into any surface water source.

3.9.6 Hydrocarbons management

If any spillage occurs, contaminated soil shall be collected in a holding tray or drum and which will then disposed at a licensed hazardous waste site. Any spillage of more than 200 litres must be reported to the Ministry of Mines and Energy as per the Petroleum Products Act.

The Contractor shall take all reasonable measures to prevent surface and groundwater pollution from any release of oils and fuels.

3.9.7 Flood management

According to a flood line analysis report (WCE, 2018) conducted for the Aussenkehr settlement, the project sites do not fall within the 1 in 100 year floodline. Storm water management systems should however form part of the engineering designs.

4. MANAGEMENT OF ENVIRONMENTAL ASPECTS DURING ALL PHASES

Surface and Groundwater

Construction phase	
Description	<p>Groundwater contamination can be caused by leakages and spills of petroleum products (i.e. oil leakages, hydrocarbon fuel, lubricants and grease) from construction vehicles and equipment during construction activities.</p> <p>Local drainage at Aussenkehr is well developed and runoff takes place through drainage lines in the area, eventually feeding water to the nearby Orange River. Contamination of surface water might occur through petroleum, chemical and hazardous substances. Care must be taken to avoid contamination of surface and groundwater.</p> <p>Any overflow of the portable sewage systems available, may transport the effluent to any nearby Orange River; or to areas where sensitive geological structures and formations are present. Inflow into these structures and formations would cause a pollution threat.</p>
Proposed Mitigation Measures	<ul style="list-style-type: none"> ✚ Prevent spillages of any chemicals and petroleum products (i.e. oils, lubricants, petrol and diesel). Use drip trays, linings or concrete floors when evidence of leaks are observed on vehicles or equipment. ✚ Servicing and maintenance of vehicles and/or equipment should be conducted on surfaces provided for; or in appropriate workshops or garages at the settlement. ✚ All fuelling, storage and chemical handling should be conducted on surfaces provided for this purpose. Drip trays, linings or concrete floors must be used when removing oil from machinery. ✚ Should portable toilet facilities be necessary, adequate containment systems should be erected at the site for use during the construction phase. ✚ Waste should properly be contained to avoid any leakages and/or spillages, and should regularly be disposed off at a suitable sewage disposal site. Run-off from these toilets due to overflows should be avoided at all cost. ✚ Prevent discharge of any pollutants, such as cements, concrete, lime, chemicals, and hydrocarbons into nearby water ways and courses. ✚ Contain contaminated water from batching operations and allow sediments to settle before being disposed of as waste water. ✚ Stabilise cleared areas as soon as possible to prevent and control surface erosion. ✚ Proper environmental awareness and remedial response training of operators must be conducted on a regular basis.
Proposed Monitoring	Regular visual inspection.
Responsible Party	Proponent / Contractors.

Air Quality (Dust Pollution)

Construction phase	
Description	<p>Dust may be produced during the construction and decommissioning phase; and might be worsened when strong winds occur. These are expected to be site specific and could potentially pose a slight nuisance to any properties.</p> <p>Possible air pollution in the form of emissions from construction vehicles and equipment could also deteriorate air quality in the area.</p>
Proposed Mitigation Measures	<ul style="list-style-type: none"> ✚ It must be ensured that all vehicles entering the project sites and machinery used in construction activities are in good working order to prevent unnecessary emissions. ✚ Encourage reduction of engine idling at the project site. ✚ Excavation, handling and transport of materials must be avoided under high wind conditions. ✚ Dust suppression measures (e.g. dampening with water) may be required from time to time, should dust become a nuisance.
Proposed Monitoring	Regular visual inspection.
Responsible Party	Proponent / Contractors.

Operational phase	
Description	Air quality around the site could be impacted by exhaust fumes from the vehicles frequenting and accessing the project sites.
Proposed Mitigation Measures	<ul style="list-style-type: none"> ✚ Encourage reduction of engine idling at the project site.
Proposed Monitoring	A complaints register regarding emissions/smell should be kept and acted on if it becomes a regular complaint.
Responsible Body	Proponent / Contractors.

Health and Safety

Construction phase	
Description	Safety issues could arise from the construction vehicles, earthmoving equipment and tools that will be used on site during the construction phase. This increases the possibility of injuries and the contractor must ensure that all staff members are made aware of the potential risks of injuries on site.
Proposed Mitigation Measures	<ul style="list-style-type: none"> ✚ Equipment and machinery operators should be equipped with ear protection equipment. ✚ Operations should be strictly between 08H00 to 17H00. First aid and safety awareness training for contractors. ✚ Ensure the general safety and security at all times by providing day and night security guards and adequate lighting within and around the project sites. ✚ The construction staff must be properly trained on safety and health issues of the project. ✚ Workers should be fully equipped with personal protective equipment gear. ✚ The site must be clearly demarked and fenced off to prevent unauthorised persons from accessing the site, who could get injured on site.
Proposed Monitoring	Safety procedures evaluation. Health and safety incident monitoring.
Responsible Party	Proponent / Contractors.

Noise Pollution

Construction phase	
Description	Noise pollution already exists in the area due to vehicular movement along the C13 main road; and various other activities within the settlement. However, construction vehicles and equipment used during the construction phase will also generated noise. It is expected that the noise generated will not have a significant impact on any third parties.
Proposed Mitigation Measures	<ul style="list-style-type: none"> ✚ Sensitize construction vehicle drivers and machinery operators to switch off engines of vehicles or machinery not being used. ✚ Ensure engines of construction machinery are fitted with mufflers. ✚ Equipment and machinery operators should be equipped with ear protection equipment. ✚ Audio equipment (if any) should not be played at levels considered intrusive by others. ✚ Operations should be strictly between 08H00 to 17H00.
Proposed Monitoring	Strict operational times. Regular inspection.
Responsible Party	Proponent / Contractors.

Operational phase	
Description	Noise pollution may be generated by vehicles, trucks and people frequenting the project sites.
Proposed Mitigation Measures	<ul style="list-style-type: none"> ✚ Maintain the grievance mechanism to capture public perceptions and complaints with regard to noise impacts, track investigation actions and introduce corrective measures for continuous improvement.
Proposed Monitoring	Observation of noise at project sites.
Responsible Body	Proponent / Contractors.

Waste Generation

Construction phase	
Description	This can be in a form of rock cuttings, building rubble, pipe cuttings, oil spills or leakages of petroleum products might occur during the construction phase.
Proposed Mitigation Measures	<ul style="list-style-type: none"> ✚ Ensure that sufficient weather- and vermin- proof bins / containers are present on site for the disposal of solid waste. Waste and litter generated during this phase must be placed in these disposal bins. Empty bins regularly as required. ✚ Ensure that no excavated soil, refuse or building rubble generated on site are placed, dumped or deposited on adjacent/surrounding properties or land. ✚ No disposal of /or burying of waste on site should be conducted. No waste should be burned on site. ✚ The hazardous waste storage is to be clearly marked to indicate the presence of hazardous substances, and the protocols associated with handling of such hazardous wastes shall be known by all relevant staff members. ✚ Regular inspection and housekeeping procedure monitoring should be maintained at all times.
Proposed Monitoring	Regular inspection and housekeeping procedure monitoring.
Responsible Party	Proponent / Contractors.

Operational phase	
Description	Waste such as contaminated soil, litter and other various types of waste will be generated during the operational phase.
Proposed Mitigation Measures	<ul style="list-style-type: none"> ✚ Contaminated soil must be removed and disposed off at a suitable waste disposal site. ✚ Waste bins must be available along road corridors and various locations at the project sites at all times. Waste must be appropriately collected and disposed off at an approved appropriate waste disposal site. ✚ Care should be taken when handling contaminated material. The cradle to grave principal should be kept in mind during waste disposal.
Proposed Monitoring	Regular visual inspection.
Responsible Body	Proponent / Contractors.

Traffic

Construction phase	
Description	The project sites are situated along the C13 main road (via various existing access roads). Construction related activities are expected to have a minimal impact on the movement of traffic along these roads. However, slow traffic frequenting the construction site may become a nuisance to motorists accessing neighbouring properties.
Proposed Mitigation Measures	<ul style="list-style-type: none"> ✚ Install and maintain official traffic signalling (where necessary) along the access roads / intersection in conjunction with local or national traffic regulations. ✚ Speed limit warning signs must be erected to minimise accidents. ✚ Construction vehicles and machinery must be tagged with reflective signs or tapes to maximise visibility and avoid accidents. ✚ Where feasible, Construction vehicles should not travel to and from project sites during peak times (before 08h00 and after 17h00), to minimise impacts on traffic. ✚ Construction vehicles should not be allowed to obstruct the road, hence no stopping in the road, wholly or partially, but rather pull off the road or park on the roadside.
Proposed Monitoring	Observations of the traffic flow along these roads.
Responsible Party	Proponent / Contractors.

Ecological impacts

Construction phase	
Description	The project sites are situated within an urban setting, which is already disturbed and earmarked for development; hence no vegetation exists at the site. The project sites itself is free of conservation worthy vegetation.
Proposed Mitigation Measures	<ul style="list-style-type: none"> ✚ Disturbance of areas outside the designated working zone is not allowed. ✚ No vegetation should be removed outside the designated project area.
Proposed Monitoring	Regular site inspection.
Responsible Party	Proponent / Contractors.

Operational phase	
Description	The operations of the project sites will have minimal impacts on the fauna and flora.
Proposed Mitigation Measures	<ul style="list-style-type: none"> ✚ The operational activities would not exceed the demarcated areas of the project sites.
Proposed Monitoring	Regular site inspection.
Responsible Body	Proponent / Contractors.

Visual / Nuisance Impacts

Construction phase	
Description	Aesthetics and inconvenience caused to person trying to access/exit the surrounding areas.
Proposed Mitigation Measures	<ul style="list-style-type: none">✚ Contractor should maintain tidiness on site at all times. Take cognition when parking vehicles and placing equipment.✚ Contractor should be attentive to the importance of not littering. Littering is unsightly and has a negative visual impact.✚ Sufficient waste bins must be provided onsite and must be emptied regularly.✚ Any building rubble generated should not be allowed to accumulate onsite, but must at regular intervals be removed to a suitable landfill disposal site or to other construction sites where it may be used as fill.
Proposed Monitoring	Regular visual site inspection.
Responsible Party	Proponent / Contractors.

5. CONCLUSIONS

If the above-mentioned management recommendations are properly implemented, it is anticipated that most of the adverse impacts on the environment can be mitigated. An appointed environmental officer/consultant will need to monitor or audit the site throughout construction to ensure that the EMP is fully implemented and complied with. The EMP caters for all project phases, but will need to be reviewed during all phases of project, especially when revisions are made to the project development plans.

The Environmental Management Plan should be used as an on-site tool during all phases of the proposed project. Parties responsible for contravention of the EMP should be held responsible for any rehabilitation that may need to be undertaken.

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