ENVIRONMENTAL MANAGEGMENT PLAN FOR THE PROPOSED BELA BELA AGRI LIFESTYLE VILLAGE REF NO. 12/1/9-7/2-W82

FOR

Mr. Louw Du Toit

ON

PORTIONS 3, 77, 183, 184 & 195

OF THE FARM

NOODHULP 492 KR

IN THE VICINITY OF

Local Municipality: Bela Bela Local Municipality
District Municipality: Waterberg District Municipality
Limpopo Province

SOUTH AFRICA

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ABREVIATIONS

DEAT ..... Department of Environmental Affairs and Tourism
DWAF ..... Department of Water Affairs and Forestry
EA .....Environmental Authorisation
EAP..... Environmental Assessment Practitioner
ECO ..... Environmental Control Officer
EIA ..... Environmental Impact Assessment
EMP .....Environmental Management Plan
EO.....Environmental Officer
ESO .....Environmental Site Officer
I&AP..... Interested and Affected Parties

DEFINITIONS

Alien species - Plants and animals which do not arrive naturally in an area - they are brought in by humans. Alien plants often force indigenous species out of the area.

Alternative - A possible course of action, in place of another, that would meet the same purpose and need defined by the development proposal. Alternatives considered in the EIA process can include location and/or routing alternatives, layout alternatives, process and/or design alternatives, scheduling alternatives or input alternatives.

Aspect – Element of an organisation's activities, products or services that can interact with the environment.

Auditing - A systematic, documented, periodic and objective evaluation of how well the environmental management plan is being implemented and is performing with the aim of helping to safeguard the environment by: facilitating management control which would include meeting regulatory requirements. Results of the audit help the organisation to improve its environmental policies and management systems.

Biodiversity - The rich variety of plants and animals that live in their own environment. Fynbos is a good example of rich biodiversity in the Cape.

Built environment - Physical surroundings created by human activity, e.g. buildings, houses, roads, bridges and harbours.

Conservation - Protecting, using and saving resources wisely, especially the biodiversity found in an area.

Contamination - Polluting or making something impure.

Corrective (or remedial) action - Response required to address an environmental problem that is in conflict with the requirements of the EMP. The need for corrective action may be determined through monitoring, audits or management review.

Degradation - The lowering of the quality of the environment through human activities, e.g. river degradation, soil degradation.

Ecology - The scientific study of the relationship between living things (animals, plants and humans) and their environment.

Ecosystem - The relationship and interaction between plants, animals and the non-living environment.

Environment - Our surroundings, including living and non-living elements, e.g. land, soil, plants, animals, air, water and humans. The environment also refers to our social and economic surroundings, and our effect on our surroundings.

Environmental Impact Assessment (EIA) - An Environmental Impact Assessment (EIA) refers to the process of identifying, predicting and assessing the potential positive and negative social, economic and biophysical impacts of a proposed development. The EIA includes an evaluation of alternatives; recommendations for appropriate management actions for minimising or avoiding negative impacts and for enhancing positive impacts; as well as proposed monitoring measures.

Environmental Management System (EMS) - Environmental Management Systems (EMS) provide guidance on how to manage the environmental impacts of activities, products and services. They detail the organisational structure, responsibilities, practices, procedures, processes and resources for environmental management. The ISO14001 EMS standard has been developed by the International Standards Organisation.

Environmental policy - Statement of intent and principles in relation to overall environmental performance, providing a framework for the setting of objectives and targets.

Habitat - The physical environment that is home to plants and animals in an area, and where they live, feed and reproduce.

Hazardous waste – Waste, even in small amounts, that can cause damage to plants, animals, their habitat and the well-being of human beings, e.g. waste from factories, detergents, pesticides, hydrocarbons, etc.

Impact - A description of the potential effect or consequence of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.

Indigenous species - Plants and animals that are naturally found in an area.

Infrastructure - The network of facilities and services that are needed for economic activities, e.g. roads, electricity, water, sewerage.

Integrated - Mixing or combining all useful information and factors into a joint or unified whole. See Integrated Environmental Management.

Integrated Environmental Management (IEM) - A way of managing the environment by including environmental factors in all stages of development. This includes thinking about

physical, social, cultural and economic factors and consulting with all the people affected by the proposed developments. Also called "IEM".

Land use **-** The use of land for human activities, e.g. residential, commercial, industrial use.

Mitigation - Measures designed to avoid, reduce or remedy adverse impacts

Natural environment **-** Our physical surroundings, including plants and animals, when they are unspoiled by human activities.

Over-utilisation - Over-using resources - this affects their future use and the environment.

Policy **-** A set of aims, guidelines and procedures to help you make decisions and manage an organisation or structure. Policies are based on people's values and goals. See Integrated Metropolitan Environmental Policy.

Process **-** Development usually happens through a process - a number of planned steps or stages.

Proponent **–** Developer. Entity which applies for environmental approval and is ultimately accountable for compliance to conditions stipulated in the Environmental authorisation (EA) and requirements of the EMP.

Recycling - Collecting, cleaning and re-using materials.

Resources **-** Parts of our natural environment that we use and protect, e.g. land, forests, water, wildlife, and minerals.

Scoping Report **-** A report presenting the findings of the scoping phase of the EIA. This report is primarily aimed at reaching closure on the issues and alternatives to be addressed in the EIA (in the case of a full EIA process).

Stakeholders **-** A subgroup of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term includes the proponent, authorities and all interested and affected parties.

Storm water management **–** Strategies implemented to control the surface flow of storm water such that erosion, sedimentation and pollution of surface and ground water resources in the immediate and surrounding environments are mitigated. This is specifically important during the construction and decommissioning phases of a project.

Sustainable development **-** Development that is planned to meet the needs of present and future generations, e.g. the need for basic environmental, social and economic services. Sustainable development includes using and maintaining resources responsibly.

Sustainability **-** Being able to meet the needs of present and future resources.

Waste Management – Classifying, recycling, treatment and disposal of waste generated during construction and decommissioning activities.

***Wetlands* -** An area of land with water mostly at or near the surface, resulting in a waterlogged habitat containing characteristic vegetation species and soil types e.g. vleis, swamps.

Zoning - The control of land use by only allowing specific type development in fixed areas or zones

REFERENCES

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ENVIRONMENTAL MANAGEGMENT PLAN FOR THE PROPOSED BELA BELA AGRI LIFESTYLE VILLAGE DEVELOPMENT

INTRODUCTION

Environmental Assurance (Pty) Ltd (Envass), as independent environmental consultants have been appointed by Bela-Bela Farmyard Estates (Pty) Ltd to undertake the Environmental Impact Assessment (EIA) for the proposed establishment of the Bela Bela Agri Lifestyle Village. The Bela Bela Agri Lifestyle Village is located in Bela Bela (previously Warmbaths) on the Rooiberg road (R516) towards Thabazimbi in the Waterberg District Municipality. On a regional scale the proposed development is situated on one of the farms on the Mabula road in the Noodhulp area. Since the original registration of the project with the Limpopo Department of Environment, Economic Development and Tourism (LEDET) a Scoping Report and Plan of Study for EIA has been submitted and been approved.

The Environmental Impact Assessment is being done as part of the planning process of this innovative concept for development in the residential as well as agricultural domain, supported by education and tourism. The developers propose to develop a model, which can be duplicated in neighbouring areas and the rest of the country.

This document is compiled in accordance with the Integrated Environmental Management (IEM) philosophy which aims to achieve a desirable balance between conservation and development (DEAT, 1992). IEM is a key instrument of the National Environmental Management Act [NEMA] (Act No. 107 of 1998). NEMA promotes the integrated environmental management of activities that may have a significant effect on the environment, while IEM prescribes a methodology for ensuring that environmental management principles are fully integrated into all stages of the development process. It advocates the use of several environmental management tools that are appropriate for the various levels of decision-making. One such tool is an Environmental Management Plan (EMP).

The IEM guidelines intend encouraging a pro-active approach to sourcing, collating and presenting information in a manner that can be interpreted at all levels. The basic principles underpinning IEM are that there be:

- informed decision-making;
- accountability for information on which decisions are taken;
- accountability for decisions taken;
- a broad meaning given to the term environment (i.e. one that includes physical, biological, social, economic, cultural, historical and political components);
- an open, participatory approach in the planning of proposals;

- consultation with interested and affected parties;
- due consideration of alternative options;
- an attempt to mitigate negative impacts and enhance positive aspects of proposals;
- an attempt to ensure that the 'social costs' of development proposals (those borne by society, rather than the developers) be outweighed by the 'social benefits' (benefits to society as a results of the actions of the developers);
- democratic regard for individual rights and obligations;
- compliance with these principles during all stages of the planning, implementation and decommissioning of the proposals (i.e. from 'cradle to grave'), and
- The opportunity for public and specialist input in the decision-making process.

These principles are in line with NEMA, which has repealed a number of the provisions of the Environment Conservation Act, 1989 [ECA] (Act No. 73 of 1989), and is focussed primarily on co-operative governance, public participation and sustainable development. The Environmental Impact Assessment Regulations that took effect in July 2006 regulate the procedures and criteria for the submission, processing, consideration and decision on applications for environmental authorisation of listed activities.

1.1 Objectives of this EMP

The objectives of the EMP are to:

- Ensure that the implementation of the construction and operation phases of the project is carried out according to the recommendations in this document;
- Describe measures to mitigate and rehabilitate potential environmental degradation resulting from the project;
- Ensure that discussions are held with the proponent and their staff, regarding pro-active environmental management, such that potential problems can be identified and mitigating measures adopted prior to construction work being carried out; and
- Define procedures for environmental control, in the event of pollution or similar events requiring action.

The point of departure for this EMP is to ensure a pro-active rather than re-active approach to environmental performance by addressing potential problems before they occur. This will limit corrective measures needed during the construction phase of the project. Therefore the purpose of an EMP is to provide management measures that must be implemented by Developers, Engineers and Contractors alike to ensure that the potential impacts of a proposed development are minimised. It must also be ensured that the EMP is maintained and upheld as a dynamic document in order for the project team to add or improve on issues that might be considered left out or not relevant to the project. In such instances the approving

authority may authorise the ECO to make such changes.

The '***pre-construction***' section of this EMP, refers to the period of time leading up to and prior to commencement of construction activities, and is included to ensure pro-active environmental management measures with the goal of identifying avoidable environmental damage at the outset and sustain optimal environmental performance throughout the construction phase. Most impacts will occur during the construction phase and must be mitigated through the contingency plans identified in the pre-construction phase.

The bulk of environmental impacts will have immediate effect during the '***construction***' phase (e.g. noise, dust, and water pollution). If the site is monitored on a continual basis during the construction phase, it is possible to identify these impacts as they occur. These impacts will then be mitigated through the measures outlined in this section, together with a commitment to sound environmental management from the project team.

The '***construction***' section refers to all construction and its operation-related activities that will occur within the approved area and access roads, until the project is completed. This "construction" section is divided into three functional areas, namely "materials"; "plant"; and "construction". Each of these functional areas within the EMP contains specific mitigation requirements and requested contractor method statements stipulated where required.

1.2 Layout of this document

This EMP is divided into four sections, namely the Introduction, Management guidelines, General environmental mitigation measure and Specific environmental mitigation measures.

- Management guidelines form the basis for environmental management on site;
- General environmental mitigation measures are those generic environmental issues, procedures and controls, which relate to projects of this nature; and
- Specific environmental mitigation measures are those environmental issues, procedures and controls, which where identified during the EIA process as potential impacts of moderate to high significance relevant to the construction and operation of this project. These specific mitigation measures are in addition and supplementary to the general mitigation measures.

MANAGEMENT GUIDELINES

As mentioned before these guidelines will form the basis for environmental management on site.

1.3 Resource allocation

In order to ensure that this EMP is implemented, the following staff resources should be made available:

1.3.1 Site manager and environmental site officer (ESO)

A site manager will be appointed by Mr Hobbs to assume the responsibility for implementing the management guidelines contained in this document.

It is also recommended that a suitably qualified person (environmental site officer (ESO)) be appointed by the proponent to undertake site evaluation, monitoring and implementation of the EMP. The environmental site officer (ESO) should conduct regular site visits (at every second week) during the construction phase and every three months for the first year of operation to audit the project and to ensure the success of the EMP. The ESO should have the authority to stop any activity deemed to be in contravention of this EMP.

The ESO will:

- Know the background of the project, and monitor the implementation of EMP;
- Act as a guide and advisor to the construction team on environmental issues during preparation and operation;
- Conduct periodic auditing of the project for adherence to the EMP, identification of problem areas and provision of action plans to avoid costly stoppages and/or further environmental damage;
- Ensure that open communication lines exists to the Department of Economic Development, Environment and Tourism (DEDET) Limpopo and the Department of Water Affairs and Forestry (DWAF) or other identified authorities for reporting of any significant environmental incidents and rapidly resolving any problems or complaints from the public;
- Ensure that any proposed changes are communicated in writing to the authorities for approval; and
- Ensure the protection and rehabilitation of the surrounding environment during the construction and operational phase as prescribed in the EMP.

1.3.2 Responsible parties

Overall responsibility for the implementation of the EMP lies with Mr Hobbs, through his appointed site manager who will:

- Notify DEDET of changes in the projects resulting in significant environmental impacts;
- Maintain a register of complaints and queries by members of the public; and
- Assistance with the implementation of the EMP and the resolution of any problem areas will be the responsibility of the ESO, as will the design and review of the monitoring program.

DEDET, Limpopo Province will be responsible for approving the Environmental Impact Assessment Report and EMP for this project.

1.3.3 Liaison, co-ordination and reporting

Mr. du Toit will be required to establish a liaison, co-ordination and reporting framework. This will include involving authorities and interested and affected parties (I&APs), liaison between the site managers and the workers as well as a reporting

system to be utilised by the ESO. This will typically involve various formalised meetings, weekly site or incident reports during the construction phase and regular auditing during operation.

The appropriate authorities will be identified and open liaison channels with them will be created. Serious incidents which can not be mitigated immediately and which will lead to noncompliance of the conditions of the approval will be reported to the authorities (DEDET and DWAF).

Open liaison channels should be identified and developed to ensure that all queries from all I&APs can be addressed with the shortest possible delay. All queries will be directed to the Site Manager. All queries will be documented and communicated to the ESO and remedial actions will be taken as soon as possible if at all feasible.

1.3.4 Monitoring and compliance by the proponent

The ESO will review the environmental management performance of the contractor, on a regular basis, at least weekly during the construction phase and three monthly during operation for the first year. The proponent will be deemed not to have complied with the environmental mitigation measures if:

- there is evidence of negligence or recklessness resulting in the contravention of any of the clauses, both within and outside the boundaries of the site;
- the proponent fails to comply with written corrective or other instructions by the ESO; or
- the proponent fails to respond adequately to complaints from the public.

1.3.5 Environmental awareness and training

It is recommended that the proponent and its staff familiarise themselves with the content of this document and that the ESO ensures that the proponent and his staff understand the content of this document and its implications.

1.3.6 General guidelines

The following measures provide guideline solutions to frequently anticipated issues on most development activities.

- The prevention of any site degradation due to non-compliance, administrative or financial problems, and inactivity during the construction phase, illegal activities, delays caused by archaeological finds etc. is ultimately the responsibility of the applicant/developer. Section 28, National Environmental Management Act [NEMA] (Act No. 107 of 1998);
- The study area must be clearly defined, surveyed and fenced according to the project authorisation. All workforce members and other construction personnel are not to go beyond the fenced footprint. Landowners are not comfortable when strangers come on to their properties. They will look for reasons to interfere with the construction process and may therefore cause delays in the process that can be very costly to the Contractor;

- The Contractors must adhere to agreed and approved access points and haul roads;
- No camping is allowed on any private property;
- Damage to private or public property such as fences, gates and other infrastructure may occur at any time. All damage to be repaired immediately and to the satisfaction of the owner;
- Relevant landowners and businesses must be informed of the starting date of construction as well as the phases in which the construction shall take place;
- The Contractor must adhere to all conditions of contract including this EMP;
- Proper planning of the construction process must be undertaken to allow for disruptions due to rain and very wet conditions;
- Where existing private roads to be utilised as access are in a bad state of repair, such roads' condition must be well documented, including photographs, before they are used for construction purposes. If necessary some repairs must be done to prevent damage to equipment and plant;
- All private and public manmade structures near the project site must be protected against damage at all times and any damage must be rectified immediately;
- Proper site management and regular monitoring of site works;
- Proper documentation and record keeping of all complaints and actions taken;
- Regular site inspections and good control over the construction process throughout the construction period;
- A positive attitude towards Environmental Management by all site personnel must be motivated through regular and effective awareness and training sessions;
- An ESO, on behalf of the Contractor, is to be appointed to implement this EMP. The EO and not the Contractor or his/her ESO is to deal with any landowner related matters; and
- Environmental Audits to be carried out during and upon completion of construction.

GENERAL ENVIRONMENTAL MITIGATION MEASURES

Summary of impacts associated with the proposed activity

The risks and key issues identified include:

- Impacts on the wetland and floodplain environment;
- Impact on the rate of erosion;
- Impact on runoff;
- Impact on quality of surface water;

- Impact on aesthetic quality;
- Impact on sense of place;
- Impact on economic and employment status;
- Nearby heritage sites; and
- Impact on infrastructure services.

1.4 Access roads

- All construction and associated activities to be confined to the identified sites. Access to the site is to be controlled such that only vehicles and persons directly associated with the work have access to the site;
- Temporary access roads should not be opened up until required and should be removed and the land restored to its former state as soon as the roads are no longer needed;
- Transport routes to and within the site should be clearly demarcated prior to use;
- All personnel and vehicles used for transportation and/or construction purposes should remain within these demarcated routes and areas, i.e. vehicles should not be allowed to drive randomly across the sites, but should remain within demarcated and approved routes. The purpose of this measure is to:
    - a) limit unnecessary compaction of topsoil; and
    - b) prevent disturbance of vegetation and sensitive habitats outside of site.
- No access roads are to be constructed without prior approval from the ESO and landowners; and
- Access roads need to be dust free.

1.5 Protection of animals and plants (Fauna & Flora)

- Contractors and staff should be prohibited to chase, catch or kill any animals found or encountered during construction and operation phases; and
- Only vegetation falling directly in demarcated access routes or project sites could be removed where necessary.

1.6 Water issues

- Impediments to or blockage of natural water flow must be avoided wherever possible;
- The ESO must assess whether regular water sampling of surface and or ground water resources within the immediate and surrounding environment are necessary. Should this be the case, baseline data from sampling must be obtained relevant to the activity and sensitivity of the area. Regular sampling must then be carried out to determine deviations from the baseline data;
- Increased run-off during construction must be managed using berms and other suitable structures as required to ensure flow velocities are reduced; this must be done in consultation with the Resident engineer as well as the

ESO. Storm water, wherever possible, should be allowed to soak into the land in the area on which the water fell e.g. retention ponds;

- In the event of pollution caused as a result of construction activities, the contractor, according to section 20 of the National Water Act, 1998 (Act No. 36 of 1998) is be responsible for all costs incurred by organisations called to assist in pollution control and/or to clean up polluted areas;
- The contractor must ensure that excessive quantities of sand, silt and silt-laden water do not enter the storm water system. Design of the storm water drainage system must ensure that the local and surrounding natural systems are not negatively impacted. Appropriate measures, e.g. erection of silt traps, or drainage retention areas to prevent silt and sand entering drainage or watercourses must be taken. These measures must be reviewed and audited by the ESO;
- No wastewater may run freely into any of the surrounding streets or naturally vegetated areas. Runoff containing high sediment loads must not be released into natural or municipal drainage systems or nearby watercourses. If this becomes a problem it is recommended that an attenuation pond be constructed to allow solids to settle prior to runoff leaving the site;
- Approval must be obtained from DWAE for any activities that require authorisation in terms of Section 39 of the National Water Act, 1998 (Act No. 36 of 1998);
- A relevant specialist must be consulted prior to the demarcation of drainage lines and wetlands;
- No vehicular access is allowed in permanently wet areas;
- It must be ensured that all equipment to be used is not the cause irreparable damage to wet areas. The contractor must, where required, use alterative methods of construction in such areas;
- “NO ENTRY” signs must be strategically placed along rivers, streams and other natural or man-made drainage lines which are in close proximity to access routes; and
- No roads are to be cut through river and stream banks as this may lead to erosion causing siltation of streams and downstream dams. Existing drifts and bridges must be used if the landowner gives his consent. Such structures must then be thoroughly examined for strength and durability before they are used.

1.7 Safety

- Excavations for whatever purpose will only remain open for a minimum period of time and during this time they must be clearly demarcated so as to prevent accidental ingress of people, animals or vehicles as well as to prevent soil erosion.

1.8 Pollution control

- All domestic waste generated on the site should be contained in skips or containers and later disposed of in a proper manner off site at a registered waste site;

- Properly managed and maintained chemical toilet or other approved facilities for contracting and permanent staff should service the site. If chemical toilet facilities are used it should be managed and serviced by a qualified commercial company. One toilet should be provided per 10-15 staff members on site. No disposal or leakage of sewage should occur on or near the site;
- Should any chemicals be spilled onto the soils the ESO shall be informed immediately and the correct spillage procedures will be followed to clean it up;
- The extent of soil contamination must be determined and polluted soil shall be rehabilitated to the satisfaction of the ESO by removing the contaminated soil and disposing of it in an appropriate manner at a registered dumpsite. The scarred area should be re-vegetated if appropriate;
- All building rubble should be:

  a) removed from site and disposed of at an appropriate municipal dumping site, or
  b) temporarily stored in a clearly demarcated area on site for future use. The site manager and the ESO should approve the position of such a storage site.
- In general, littering, discarding or burying of any waste materials shall not be allowed on site;
- All machinery is to be maintained in a good working order so as to prevent soil or water pollution from oil, fuel or chemical leaks.

1.9 Dust

- Dust levels shall be kept to a minimum by the implementation of dust suppression measures where appropriate (periodic water sprinkling on roads);
- Water used for dust suppression shall be used in quantities small enough not to generate run-off and resulting soil erosion. This programme is to be compiled by the proponent and approved by the ESO; and
- Special care should be taken in areas where the transport route passes close to inhabited areas to prevent dust settling on residential units.

1.10 Noise

- Noise generating activities should be restricted to between 06h00 and 18h00 Monday to Friday, and 06h00-13h00 on Saturdays unless otherwise approved by the appropriate competent person in consultation with adjacent landowners or potentially affected persons;
- Noise impacts should be minimised by restricting the hours during which the offending activities are carried out and, where possible, by insulating machinery and/or enclosing areas of activity; and
- Noise emanating from construction activities must not exceed the ambient noise level with more than 7dBA or more when measured at the nearest dwelling.

1.11 Removal & preservation of soil

- If topsoil (top 300 mm as a minimum) is removed it should be temporarily

stockpiled, separately from subsoil or rocky material. The topsoil contains both the seed bank and the nutrient supply necessary for plant growth: if mixed with subsoil the usefulness of the topsoil for rehabilitation of the site will be lost;

- Stockpiled topsoil should not be compacted and should be replaced as the final soil layer during rehabilitation;
- Stockpiled subsoil should be protected by erosion-control berms if exposed for a period of greater than 14 days during the wet season;
- Soil stockpiles should be located away from drainage lines and areas of temporary inundation; and
- Soil should be exposed for the minimum time possible once cleared of vegetation, i.e. the timing of clearing and grubbing should be co-ordinated as much as possible to avoid prolonged exposure of soils to wind and water erosion.

1.12 Soil

- The contractors must provide and maintain a method statement for "management of topsoil";
- Topsoil must be stripped from all areas that are to be utilized during the construction period and where permanent structures and access is required. These areas will include the permanent works, pipeline trenches, stockpiles, access roads, construction camps and laydown areas. Topsoil must be stripped after search and rescue (Fauna and Flora) has been conducted and clearing of woody vegetation and before excavation or construction commences;
- Topsoil must be deemed to be the top layer of soil containing organic material, nutrients and plant seeds. For this reason it is an extremely valuable resource for the rehabilitation and vegetation of disturbed areas;
- Ripping must be done to a depth of 250 mm in two directions at right angles. Topsoil must be placed in the same soil zone from which it has been stripped;
- At the beginning of the construction phase, topsoil removed for vegetation clearance must be stripped to a minimum depth of 150 mm and stockpiled on the demarcated topsoil stockpile areas;
- All topsoil must be removed and stockpiled on the site;
- However, the use of topsoil for rehabilitation contaminated by the seed of alien vegetation (e.g. blackjacks, etc.) must not be permitted unless a programme to germinate the seed and eradicate the seedlings is drawn up and approved, or some other mitigatory feature is found. This must be approved by the ECO;
- Single handling is recommended. Stock piles must not be higher than 2m to avoid compaction;
- Dust suppression is necessary for stockpiles older than a month – with either water or a biodegradable chemical binding agent;
- Backfilling must be undertaken in such a way that the final contours blend with the surrounding environment;

- Remediated slopes must be graded to preferably 1:2;
- Slopes can then be capped with topsoil. This requires a minimum layer of 100 mm in most areas; and
- Disturbed surfaces to be rehabilitated must be ripped and the area must be backfilled with excavated material from the site.

1.13 No-go or sensitive areas

- All construction activities must remain within the boundaries of the development area, as demarcated at the start of construction. There must be no vehicular access to the drainage lines outside the development area;
- The construction footprint must be kept to a minimum must be clearly demarcated (e.g. warning tape) and fenced prior to the commencement of construction activities thus reducing the infringement of the development on surrounding habitats;
- No-go areas (e.g. wetland, riparian rocky outcrop and historical buildings) must be demarcated with fencing/warning tape and signs before any construction activities commence. These areas and the type of fencing/demarcation must be approved by the relevant specialist involved in the EIA process. The ESO must be on site in order to make sure the correct areas are fully demarcated; and
- Land close to the fenced “no-go” sensitive areas that are to be cleared must first be demarcated and screened for Red Data Species by the ESO and a relevant qualified specialist before construction commences.

1.14 Rehabilitation

- Once the construction phase is completed, all redundant infrastructure, soil, waste and construction materials should be removed from site by the proponent and disposed of in an appropriate manner, i.e. at a registered site;
- Disturbed areas, which are to remain free of development, should be rehabilitated to a state comparable to the surrounding vegetation;
- Areas compacted by vehicles during the construction phase may have to be scarified (ripped) to allow penetration of plant roots and the re-growth of vegetation;
- Stockpiled topsoil (not higher than 2 meters) should be used as the final cover for all disturbed areas where re-vegetation is required; and
- Due to the sensitivity of the drainage lines, re-vegetation of these areas should take place as soon as possible after the work is completed and erosion control measures must be employed both during and after operation.

1.15 Control over noxious, invasive and problem vegetation

- The disturbed areas must be monitored and maintained to contain and prevent noxious and invasive plants from spreading in the area. A three monthly inspection by the ESO should be executed in this regard.
- The following must be kept in mind:

The Conservation of Agricultural Resources Act 1983 (ACT No. 43 of

1983) abstracts from regulations 15A to 15F on combating category 1 plants.

15A

Category 1 plant may not occur on any land or inland water surface other than in biological control reserves.

A land user shall control any category 1 plant (s)that occur on any land or inland water surface in contravention of the provisions of sub-regulation (1) by means of the methods prescribed in regulation 15(E)

No person shall, except in or for purposes of a biological control reserve:
Establish, plant, maintain, multiply or propagate category 1 plants.
Import or sell propagated material of category 1 plants or category 1 plants.
Acquire propagating material of category 1 plants or any category 1 plants.

(4) The executive officer may, on good cause show in writing by the land user, grant written exemption from compliance with the requirements of sub-regulation (1) on such conditions as the executive officer may determine in each case.

Summary of regulation 15(E)

The plants (category 1) must be removed from property by:
Uprooted, felling, cutting or burning.
Several option of biological control are available.
Any other method or treatment recognised by executive officer.
A combination of summarized methods above excepted by the executive officer.

The Conservation of Agricultural Resources Act 1983 (ACT No. 43 of 1983) abstracts from regulations 15B on combating category 2 plants.

15B

Category 2 plants may not occur on any land or inland water surface other than a demarcated area or a biological control reserve.
(a) The executive officer may on application in writing demarcate an area as an area where category 2 plants may occur, be established and be maintained.
(b) An area in respect of which a water use license for stream flow reduction activities has been issued in terms of section 36 of the National Water Act, 1998 (Act no. 36 of 1998) shall be deemed to be a demarcated area.
3. The executive officer shall demarcate an area for the occurrence, establishment and maintenance of category 2 plants only if:
(a) the category 2 plants in the area are cultivated under controlled circumstances; and
(b) the land user concerned has been authorised to use water in terms of the National Water Act,(1998) (Act No. 36 of 1998).; and

(c) the category 2 plants or products of category 2 plants in the area are demonstrated to primarily serve a commercial purpose, use as a woodlot, shelter belt, building material, animal fodder, soil stabilisation, medicinal or other beneficial function that the executive officer may approve; and
(d) all reasonable steps are taken to curtail the spreading of propagating material of the category 2 plants outside the demarcated areas.
4. When an area is demarcated for the occurrence, establishment and maintenance of category 2 plants the executive officer may impose such additional conditions as may reasonably be deemed necessary to keep the category 2 plants in the area in check.

No person shall sell propagating material of category 2 plants or any category 2 plants to another person unless such other person is a land user of a demarcated area or of biological control reserve.

No person shall acquire propagating material of category 2 plants or any category 2 plants unless such material or plants are intended for use in a demarcated area or in a biological control reserve.

Propagating material of category 2 plants or category 2 plants shall only be imported or sold in accordance with the provisions of the Plant improvement Act, 1976 (Act no. 53 of 1976), the Agricultural Pest Act 1983 (Act No. 36 of 1983) and the environment conservation regulations.

A land user shall control any category 2 plants that occur on any land or inland water surface in contravention of the provisions of sub-regulation (1) by means of the methods described in regulation 15E.

Unless authorised thereto in terms of the National Water Act, 1998 (Act No. 36 of 1998), no land user shall allow category 2 plants to occur within 30 meters of the 1:50 year flood line of a river, stream, spring or natural channel in which water flows regularly or intermittently, lake, dam or wetland.

The executive officer may, on good cause shown in writing by the land user, grant written exemption from compliance with one or more of the requirements of sub-regulations (1),(3),(5),(6),(8) and (9) on such conditions as the executive officer may determine in each case.

The Conservation of Agricultural Resources Act 1983 (ACT No. 43 of 1983) abstracts from regulations 15C on combating category 3 plants.

<u>15 (C)</u>
(1) Category 3 plants may not occur on any land or inland water surface other than in biological control reserves.
(3) (a) No land user shall allow category 3 plants to occur within 30 meters of the 1:50 year flood line of a river, stream, spring, natural channel in

which water flows regularly or intermittently, lake, dam or wetland.

(b) The executive officer may impose such additional conditions as may reasonably be deemed necessary with regard to category 3 plants already in existence at the time of the commencement of these regulations.

(c) A land user must take all reasonable steps to curtail the spreading of propagating material of category 3 plants.

(d) The executive officer may, after consultation with the land user, issue a direction in terms of section 7 of the Act that category 3 plants in existence at the time of the commencement of these regulations must be controlled by means of the measures prescribed in regulation 15F.

(4) No person shall, except in or for purposes of a biological control reserve-

(a) Plant ,establish, maintain, multiply or propagate category 3 plants;

(b) Import sell propagating material of category 3 plants or any category 3 plants;

(c) Acquire propagating material of category 3 plants or any category 3 plants.

(5) The executive officer may, on good cause show in writing by the land user, grant written exemption from compliance with one or more of the requirements of sub-regulations (1),(3) and (4) on such conditions as the executive officer may determine in each case.

1.16 Campsites, workshops, storage areas and miscellaneous disturbed areas

1.16.1 Construction camp or staff housing

- The construction campsite or staff facilities need to be placed where these will cause the least impact on the biophysical and social elements of the area; this site needs to be approved by the ESO and site manager;
- A registered supplier shall provide properly managed and maintained temporary chemical toilets or permanent toilets on site; and
- Skips or containers for refuse and litter will be provided, used and cleaned regularly by the contractor.

1.16.2 Toilets and ablution facilities

- The contractor is responsible for providing all sanitary arrangements for his and the sub-contractors team. A minimum of one chemical toilet must be provided per 15 persons;
- Sanitary arrangements must be to the satisfaction of the ESO and the local authority. Toilets must be of the chemical type. The contractor must keep the toilets in a clean, neat and hygienic condition. The contractor must supply toilet paper at all toilets at all times. Toilet paper dispensers must be provided in all toilets;
- Toilets provided by the contractor must be easily accessible and a maximum of 50m from the works area to ensure they are utilised. All toilets will be located within the contractor’s camp. Should toilets be needed elsewhere, their location must first be approved by the ESO. No toilets should be allowed

within the 1:100 flood lines; wetland riparian and other sensitive water course areas; and

- The contractor (who must use reputable toilet-servicing company) must be responsible for the cleaning, maintenance and servicing of the toilets. The contractor (using reputable toilet-servicing company) must ensure that all toilets are cleaned and emptied before the builders' or other public holidays.
- Toilets out on site must be secured to the ground and have a sufficient locking mechanism operational at all times.

1.16.3 Waste Management

- The contractors must provide and maintain a method statement for "solid waste management". The method statement must provide information on proposed licensed facility to be utilised and details of proposed record keeping for auditing purposes;
- Waste must be separated into recyclable and non-recyclable waste, and must be separated as follows:
    - Hazardous waste: including (but not limited to) old oil, paint, etc,
    - General waste: including (but not limited to) construction rubble,
    - Reusable construction material.
    - Recyclable waste must preferably be deposited in separate bins. The contractor is advised that "Collect-a-Can" collect tins, including paint tins, chemical tins, etc. and "Consol" collect glass for recycling.
- Any illegal dumping of waste must not be tolerated, this action will result in a fine and if required further legal action will be taken. This aspect must be closely monitored and reported on; proof of legal dumping must be able to be produced on request;
- Bins must be clearly marked for ease of management;
- All refuse bins must have a lid secured so that animals cannot gain access;
- Sufficient closed containers must be strategically located around the construction site to handle the amount of litter, wastes, rubbish, debris, and builder's wastes generated on the site;
- Subcontractor(s) must contain a clause to the effect that the disposal of all construction-generated refuse / waste to an officially approved dumping site is the responsibility of the subcontractor in question and that the subcontractors are bound to the management activities stipulated in this EMP. Proof of this undertaking must be issued to the ESO;
- All solid and chemical wastes that are generated must be removed and disposed of at a licensed waste disposal site. The contractor is to provide proof of such to the ESO;
- Chemical containers and packaging brought onto the site must be removed for disposal at a suitable site; and
- A skip, with a cover, must be used to contain refuse from campsite bins, rubble and other construction material.

1.16.4 Fires

- The contractors must provide and maintain a method statement for "fires",

clearly indicating where and for what fires will be utilised plus details on the fuel to be utilised;

- Absolutely no burning of waste is permitted;
- Fires will only be allowed in facilities especially constructed for this purpose within fenced Contractor's camps. Wood, charcoal or anthracite are the only fuels permitted to be used for fires. The contractor must provide sufficient wood (fuel) for this purpose;
- Fires within the designated areas must be small in scale so as to prevent excessive smoke being released into the air; and
- No wood is to be collected, chopped or felled for fires from private or public property as well as from no-go or sensitive areas within the site and any surrounding natural vegetation.

1.16.5 Erosion and sedimentation

- The disturbance of steep slopes, for example by the removal of vegetation, may result in slope instability and erosion by rain and surface runoff;
- To reduce the loss of material by erosion, the contractor must ensure that disturbance on site is kept to a minimum. The contractor is responsible for decommissioned all eroded areas in such a way that the erosion potential is minimised after construction has been completed;
- All disturbed areas will require decommissioning must be mulched to encourage vegetation re-growth. Mulch used must be free from alien seed; and
- These areas must be cordoned off so that vehicles or construction personnel cannot gain access to these areas.

1.16.6 Workshops and storage areas

- These areas will be chosen so as to cause the least impact on the biophysical and social elements of the area; and
- All chemicals, including fuel and grease should be stored in a safe/secure area in sealed containers on an impenetrable area/floor, with provision for trapping spillage.

1.16.7 Materials handling

- Proper storage facilities should be provided for the storage of chemicals and any hazardous materials to be used during operation (if applicable);
- The contractor must provide method statements for the "handling & storage of oils and chemicals", "fire", and "emergency spills procedures";
- Spill kits must be available on site and in all vehicles that transport hydrocarbons for dispensing to other vehicles on the construction site. Spill kits must be made up of material/product that is in line with environmental best practice (SUNSORB is a recommended product that is environmentally

friendly);

- These storage facilities (including any containers) should be stored on an impermeable surface, in order to ensure that accidental spillage does not pollute soil or water resources;
- An inventory of all chemicals and other substances must be kept on site, along with a description of possible ill effects and treatment of health-related afflictions resulting from accidents, should be kept in the storage area as well as by the appropriate site manager. Such areas should be securely locked;
- Workers should at all times be made aware of the health risks associated with the use of all chemicals (e.g. smoking near storage areas), and should be provided with appropriate protective clothing or equipment in case of spillages or accidents;
- Cement and other potential environmental pollutants should be stored and mixed on an impermeable substratum. There should be no opportunity for environmental contamination;
- All stockpiled material must be easily accessible without any environmental damage;
- All temporarily stockpiled material must be stockpiled in such a way that the spread of materials are minimised;
- The stockpiles may only be placed within the demarcated areas preferably the current feedlot area. No stockpiles should be placed within the 1:100 flood lines;
- The contractor must avoid vegetated areas that will not be cleared;
- Storm water runoff from the stockpile sites and other related areas must be directed into the storm water system with the necessary pollution prevention measures such as silt traps and may not run freely into the immediate and surrounding environments;
- Stockpiles are to be stabilised if signs of erosion are visible;
- Soils from different horizons must be stock piled such that topsoil stockpiles do not get contaminated by sub-soil material;
- Topsoil stockpiles must be monitored for invasive exotic vegetation growth. Contractors must remediate as and when required in consultation with the ESO;
- No plant, workforce or any construction related activities may be allowed onto the topsoil stockpiles;
- Topsoil stockpiles must be clearly demarcated as no-go areas; and
- Stock piles must not be higher than 2m to avoid compaction thereby maintaining the soil integrity and chemical composition.

1.16.8 Dangerous and toxic materials

- Materials such as fuel, oil, paint, herbicide and insecticides must be sealed and stored in bermed areas or under lock and key, as appropriate, in well-

ventilated areas;

- Sufficient care must be taken when handling these materials to prevent pollution. Training on the handling of dangerous and toxic materials must be conducted for all staff prior to the commencement of construction;
- In the case of pollution of any surface or groundwater, the Regional Representative of the Department of Water Affairs and Environment (DWAE) must be informed immediately;
- Storage areas must display the required safety signs depicting “no smoking”, No Naked lights” and “Danger” containers must be clearly marked to indicate contents as well as safety requirements;
- The contractor must supply a method statement for the storage of hazardous materials at tender stage; and
- Material Safety Data Sheets (MSDS) must be prepared for all hazardous substances on site and supplied by the supplier where relevant. MSDS’s must be updated as required.

1.16.9 Bulk storage of fuels and oils

- The contractors must provide and maintain a method statement for “Diesel tanks and refuelling procedures”;
- Bulk fuel storage tanks on the site must be on an impervious surface that is bunded and able to contain at least 110% of the volume of the tanks. The filler tap must be inside the bunded area where possible and the bund wall must not have a tap or valve;
- A Flammable Liquid License must be obtained for diesel volumes greater than 200 litres;
- Environmental Authorisation is required for volumes greater than 30 000 litres;
- Bulk fuel storage tanks must be located in a portion of the construction camp where they do not pose a high risk in terms of water pollution (i.e. they must be located away from water courses). No bulk fuel storage will be allowed within the 1:100 flood lines and the bulk tanks should preferably be placed in the currently disturbed feedlot area or alternatively just north of the railway line;
- Bulk fuel storage tanks must be placed so that they are out of the way of traffic, so that the risk of the tanks being ruptured or damaged by vehicles is minimised; and
- Bulk fuel storage areas should be covered during the rainy season.

1.17 Labour control

- Access to the farm should be restricted to employees of contractors or the proponent;
- The contractors should ensure that labourers remain within the demarcated site;
- The contractors should ensure proper supervision of employees at all times;
- All staff should be educated as to the need to refrain from destruction of animals and plants, as well as from indiscriminate defecation and urination, waste disposal and/or pollution of soil and water resources; and
- Staff should be informed that access to adjacent/private properties is strictly off-limits, and that it will be deemed a serious offence if any person is found trespassing.

1.18 Fire prevention and control

- Smoking should be prohibited in the vicinity of flammable substances;
- The proponent should ensure that fire-fighting equipment is available on site, in particular where flammable substances are being stored or used;
- All regulations contained in the Occupational Health & Safety Act apply;
- Any welding or other sources of heating of materials should be undertaken in a controlled environment wherever possible and under appropriate supervision, in such a manner as to minimise the risk of veld fires and/or injury to staff; and
- Open fires for heating and cooking shall only be permitted in protected areas designated by the ESO for this purpose.

SPECIFIC ENVIRONMENTAL MITIGATION MEASURES

The construction and operation of a Agri Lifestyle Village is likely to result in certain predictable impacts on the environment. The results of the Scoping EIA process indicate that:

With mitigation/management measures most of the impacts identified can be reduced to a level of low environmental significance. Mitigation measures have been proposed to cater for the minimisation of environmental impacts related to the identified sensitive environments as well as the potential impacts related to this project. This section deals with the mitigation measure suggested specifically for those issues related to this piggery development and operation. Please also note that some of these mitigation measures will literally be build into the project from the start to prevent adverse affects.

1.18.1 Groundwater

Pumping water from the boreholes to use for the development could deplete the groundwater if it is not used according to the recommendations.

If abstraction is limited to the sustainable yield as recommended (25 488 m^3/annum or 70m^3/day or about 2.9 m^3/hr pumping 24 hrs / day) the impact is expected to be negligible, especially since the required volume per day is estimated at about half this

volume for the piggery and then a bit extra for domestic use and watering of game on the farm.

1.18.2 Animals

Disturbance of animals during construction period could take place. Construction staff should be prohibited to chase, catch or kill any animals found or encountered during construction. It is expected that animals will move away from activities but will return when things have settled down again.

1.18.3 Visibility and visual attractiveness

The siting of the construction camp and materials storage (if any) need to be done carefully not to spoil sensitive or attractive sites. The siting of construction camp and materials storage areas should not be in the vicinity of sensitive sites e.g. areas of periodic water logging (at any point in time) or drainage.

The visibility of the household units from the surrounding area as well as the attractiveness or how well they blend into the surroundings could be a potential impact that needs attention. Screening can be provided by planting trees near the road and near the fence surrounding the units.

- Shade cloth must be utilised to conceal and minimise the visual impact of contractor camps, lay down and storage areas;
- Landscaping must enhance the aesthetic appeal of the development;
- The buildings that are to be erected must be aesthetically pleasing and blend into the area as far as possible;
- Rubble and litter must be removed every two weeks or more often as the need arises and be disposed of at a registered landfill; and
- The ESO and visual impact assessment specialist should comment on the visual impact as part of the ESO's monitoring requirements.

1.18.4 Lighting

Lighting in and around the units could possibly cause a disturbance to neighbours. Outside lights will be placed in such a way that they will not disturb the neighbours or traffic passing by on the road. Lights will be directed downwards or be shielded to ensure that it does not cause any disturbance to the surroundings and that they only provide sufficient light for security reasons.

1.18.5 Pressure on roads

Construction vehicles and delivery transport could increase the amount of traffic on local roads.

Construction and delivery contractors need to be informed of the importance of keeping to the speed limits, especially where they pass inhabited areas, but also due to the fact that game still occur on all these roads and can cause a danger on the roads.

Dust need to be monitored and dust suppression measures need to be put in place should it become a nuisance.

1.18.6 Noise

Although it is expected that some noise will be generated during the construction phase it is not expected that his will cause a nuisance to any of the neighbour due to the distances.

It is further expected that the pigs will make a fair amount of noise in the mornings when being fed, but it is also not expected that this will reach any of the neighbours or be a nuisance to them.

1.18.7 Spreading of manure on pastures

Slurry will be sprayed out on the pasture as per a fixed schedule in order to allow enough time for it to be dried and decomposed before the next layer is applied. Ensure that the amount of slurry sprayed on the lands never reach a level that will build up nutrients and thus leach out to the groundwater. Spread the slurry in the mornings to allow time for the sun to dry it during the day. Apply recommendations from odour management report. Establish a feedback program from neighbours to monitor which activities might cause offensive odours.

CONCLUSION

The results of the environmental impact identification and assessment process indicate that with mitigation/management measures that all the impacts identified can be reduced to a level of low environmental significance.