

FUNDA MLIMI POULTRY ABATTOIR

DRAFT ENVIRONMENTAL MANAGEMENT PLAN

August 2013



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TITLE: Funda Mlimi Poultry Abattoir: Draft Environmental Management Plan

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PART A: INTRODUCTION

1. BACKGROUND

Aurecon (Pty) Ltd, as Independent Environmental Consultants and Impact Assessors, has been appointed by The Mpumalanga Department of Agriculture, Rural Development, and Land Administration (DARDLA) through Endecon Ubuntu who act as the consultants on this proposed project, to conduct the Environmental Impact Assessment and Waste Licensing processes for the proposed Funda Mlimi Poultry Abattoir on Portion 1 of the Farm Gemsbokspruit 231 JR, Thembisile Local Municipality, Mpumalanga Province.

The entire area to be transformed is approximately 9000 m² in extent and is situated approximately 45km north of Bronkhorstspuit.

This proposed poultry abattoir will comprise of:

- New regional offices within a close proximity of the existing offices;
- Two new broiler houses next to the existing broiler houses;
- Effluent Treatment Plant;
- Irrigation; and
- Repair of the existing dams.

The total surface area to be transformed is 9000m².

2. PURPOSE OF THIS DOCUMENT

The main purpose of an Environmental Management Plan (EMP) is to ensure the sustainable management of the environment, whilst avoiding and/or minimising any environmental damage, during the entire lifespan of the project, which includes the construction phase, operational phase and decommissioning of the poultry abattoir. This EMP must be viewed as a legally binding document to which all parties involved in the construction and operation of the plant must be compliant. This EMP supersedes any contracts and must be adhered to during the entire lifespan of the power plant.

Thus the aim of the EMP is to:

- ~ Provide background information on the project, and thus the fundamentals on which the various EMPs are based;
- ~ Ensure that the construction and operational staff are familiar with the environmental procedures to be followed and comply with all the recommendations made within it;
- ~ Ensure that a directory of environmental persons involved in the project is given to the construction and operational staff;
 - ~ Ensure that a monitoring schedule is established and maintained, in order to proactively identify and manage any potential negative environmental impacts;
 - ~ Provide systems to ensure that the mitigation measures are implemented to avoid and/or minimise the identified negative environmental impacts and to enhance the positive impacts of the project on the environment;

- ~ Ensure that a monitoring programme is in place that monitors the implementation of the identified mitigation measures; and
- ~ Provide a system that ensures non-compliances are identified and addressed or mitigated to reduce the potential severity of the resulting environmental impact.

This EMP must be updated with all conditions of authorisation and all other relevant information arising from the detailed planning and design phases. Prior to the commencement of construction, this EMP should be converted into project specifications.

3. INFORMATION PROVIDED IN TERMS OF NEMA SECTION 24N

This EMP has been compiled in accordance with Section 24N of the National Environmental Management Act (Act 107 of 1998), as amended by the National Environmental Management Amendment Act (Act 62 of 2008). The following details are furnished in compliance with the Act.

3.1 Author's Credentials

This EMP has been compiled in accordance with GN 544, exclusion (i) of activity 18 of the National Environmental Management Act (Act 107 of 1998), as amended by the National Environmental Management Amendment Act (Act 62 of 2008). The following details are furnished in compliance with the Act.

Anne-Mari White, an Environmental Practitioner based in Nelspruit. She has completed her Bachelors Degree in Environmental Management majoring in Zoology in 2007. She started working in the environmental field in 2008, completing various Basic Assessments, Environmental Impact Assessments and Environmental Management Plans. She is familiar with Geographic Information Systems. She has also gained experience in water license as well as waste license applications.

a. RESPONSIBLE PARTIES

The following parties are responsible for the implementation of the Environmental Management Programme:

PHASE	RESPONSIBLE PARTY	REPRESENTATIVES
Construction	DARDLA	Environmental Control Officer: To be Appointed

4. LEGAL CONTEXT AND REQUIREMENTS

The proposed project will require several environmentally related authorisations. All reasonable measures will be taken to ensure that the potential impacts and appropriate mitigations measures for these activities have been thoroughly investigated and incorporated in the Environmental Management Programme (EMP).

4.1 National Environmental Management Act (NEMA)

As mentioned above the National Environmental Management Act (No. 107 of 1998) (as amended) (NEMA) regulates the procedure and criteria relating to the submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities, in order to avoid detrimental impacts on the environment, as far as possible.

DARDLA has the responsibility to ensure that the proposed activity, including the EIA process, conforms to the principles of NEMA. Certain activities have been identified by Aurecon, which require authorisation from the competent environmental authority, in this case the Mpumalanga Department of Economic Development, Environment and Tourism (MDEDET), before the construction and establishment of the dairy farm may commence. Listed activities in Government Notice (GN) No R.544 and R.546 require Basic Assessment (unless they are being assessed under an EIA process); whilst GN No. R.545 requires full Scoping and EIA. The activities being applied for in the EIA process are listed in Table 1.

A conservative approach was therefore taken to identify all possible activities that may conceivably fall within the thresholds of the listed activities. As more project detail becomes available, the list of activities requiring authorisation may therefore also be refined.

Table 1: Identified Listed Activities to be authorised for the proposed power station

LISTED ACTIVITY	
GN No. R.544, August 2010	
3	The construction of facilities or infrastructure for the slaughter of animals with a product throughput of: - poultry exceeding 50 poultry per day; or game and red meat exceeding 6 units per day.
5	The construction of facilities or infrastructure for the concentration of: (i) more than 1 000 poultry per facility situated within an urban area, excluding chicks younger than 20 days (ii) more than 5 000 poultry per facility situated outside an urban area, excluding chicks younger than 20 days
8	The construction of a hatchery or agri-industrial infrastructure outside industrial complexes where the development footprint covers an area of 2 000 square metres or more.
11	The construction of: - Canals - Channels - Bridges - Dams - Weirs - Bulk storm water outlet structures - Marinas - Jetties exceeding 50m ² in size - Slipways exceeding 50m ² in size - Buildings exceeding 50m ² in size

	<p>- Infrastructure or structures covering 50m² or more</p> <p>Where such construction occurs within a watercourse or within 32m of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</p>
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In terms of Section 24N of the NEMA the submission of an Environmental Management Programme (EMP) is legislated and must contain the specified components as stipulated in S24 (N) (2) (a)-(g), being:

- (2) *The environmental management programme must contain-*
- (a) *information on any proposed management, mitigation, protection or remedial measures that will be undertaken to address the environmental impacts that have been identified in a report contemplated in subsection 24(1A), including environmental impacts or objectives in respect of-*
 - (i) *planning and design;*
 - (ii) *pre-construction and construction activities;*
 - (iii) *the operation or undertaking of the activity in question;*
 - (iv) *the rehabilitation of the environment; and*
 - (v) *closure, if applicable;*
 - (b) *details of-*
 - (i) *the person who prepared the environmental management programme; and*
 - (ii) *the expertise of that person to prepare an environmental management programme;*
 - (c) *a detailed description of the aspects of the activity that are covered by the environmental management programme;*
 - (d) *information identifying the persons who will be responsible for the implementation of the measures contemplated in paragraph (a);*
 - (e) *information in respect of the mechanisms proposed for monitoring compliance with the environmental management programme and for reporting on the compliance;*
 - (f) *as far as is reasonably practicable, measures to rehabilitate the environment affected by the undertaking of any listed activity or specified activity to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development; and*
 - (g) *a description of the manner in which it intends to-*
 - (i) *modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;*
 - (ii) *remedy the cause of pollution or degradation and migration of pollutants; and*
 - (iii) *comply with any prescribed environmental management standards or practices.*

4.2 National Water Act (NWA)

The proposed site for the Funda Mlimi Poultry Abattoir is situated within a close proximity to a water resource. Potential impacts may therefore occur. No construction will however take place within the wetland area.

Water pollution during the construction and operational phases of the poultry abattoir farm must be prevented.

The EMP will also contain the necessary operational requirements, and the applicable by-law requirements, to ensure that the appropriate environmental mitigation measures are in place.

4.3 National Environmental Management: Waste Act (NEM:WA)

The National Environmental Management: Waste Act (59 of 2008) (NEM:WA) deals with regulating waste management in South Africa. The Act introduced listed waste management activities that require authorisation, and also provides a detailed framework for waste management through all the phases of generation, storage, transportation, and disposal.

4.4 National Heritage Resources Act (NHRA)

The National Heritage Resources Act (No. 25 of 1999) protects and manages heritage and cultural sites. During the site visit, no area of cultural heritage significance was identified on the proposed site. Should any heritage artefacts be unearthed during the construction phase, all activities will have to come to a halt, in order for a heritage evaluation to be conducted.

4.5 National Environmental Management: Biodiversity Act (NEM:BA)

The National Environmental Management: Biodiversity Act (No. 10 of 2004) protects all listed species under GN 152. Currently, no protected species have been identified on the site.

Should any pest control or herbicide application be performed by a commercial company, a pest control operator certificate is required for the operator, from the Department of Agriculture. All invasive species alien species should be removed from any sites where construction takes place.

4.6 Hazardous Substances And Dangerous Goods Transportation And Storage

Fuel and oil may be stored on site during the construction phase. The necessary storage and mitigation measures will be provided in the EMP.

4.7 National Road Traffic Act (83 OF 1996 GN R 225)

The transportation of dangerous substances and goods are listed in the standard specification of the SABS 10228 and is strictly regulated by the SABS Codes incorporated into the law by the Regulations published in terms of the above Act. These regulations do not apply to substances transported in quantities less than the “exempt quantities” listed in clause 7 of SABS 02321.

4.8 PART B: MAINTENANCE/CONSTRUCTION EMP

5. INTRODUCTION

It is imperative that, prior to the maintenance/construction of the poultry abattoir, that a comprehensive set of mitigatory and remedial requirements be identified and through the EMP (this document) be properly and effectively implemented. Thus this Environmental Management Programme (EMP), is to be seen as a working document, and will have a key role to play in the proper and successful maintenance of the Funda Mlimi Poultry Abattoir.

An EMP is defined as “an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented and / or minimised and / or mitigated, and that the positive benefits of the projects are enhanced”¹. As the name suggests, the Construction Environmental Management Programme provides specific environmental guidance for the construction of the poultry abattoir, and is intended to manage and mitigate construction activities so that unnecessary or avoidable environmental impacts do not result. These impacts range from those incurred during mobilisation (site establishment of the construction camp, mobilisation of the workforce, etc.) through to those incurred during the construction activities themselves (erosion, pollution of watercourses, noise, dust, etc.). The Maintenance/Construction Environmental Management Programme also addresses the construction demobilisation phase, as it relates to requirements for the site exit and remediation by the contractor (soil stabilisation, re-vegetation, clean-up, etc.). Specifically, the objectives of the Maintenance/Construction Environmental Management Programme can be articulated as follows:

- To give effect to the environmental and social commitments that the client has, with regard to maintaining the ecological status of the property;
- To ensure that these requirements or commitments are expressed in a manner that is accessible to all parties and is binding upon those responsible for project implementation;
- To ensure that adequate financial and human resources are allocated to the project in order to give effect to such requirements or commitments, and to ensure that the scale of EMP-related interventions is consistent with the significance of identified impacts;
- To provide a coherent and pragmatic framework for the implementation of the requirements, especially through highlighting the roles and responsibilities of the key project role-players with regard to the auditing and reporting of compliance; and
- To ensure that the maintenance/construction of the project does not result in undue or reasonably avoidable adverse environmental or social impacts, and that any potentially beneficial impacts are enhanced.

¹ Lochner (2005) *Guideline for Environmental Management Plans*. CSIR Report No ENV-S-C 2005-053 H. Republic of South Africa, Provincial Government Western Cape, Department of Environmental Affairs and Development Planning, Cape Town.

The scope of the Environmental Management Programme is to ensure that the objectives outlined above are addressed. The following potentially significant, construction-related activities and related environmental impacts necessitating management interventions are as follows:

1. Deterioration of wetlands and water quality
2. Erosion
3. Impact on heritage resources
4. Noise and dust pollution
5. Safety of employees during construction
6. Waste Management;
7. Fire Management and
8. Incidents and Complaints.

None of the construction impacts are expected to have a highly significant impact on the receiving environment, given their relatively short duration and localised extent. Many of the impacts may however, be of medium significance and require specific mitigation interventions in order to avoid and minimise the impact on the local biophysical and social environment.

This Environmental Management Programme has been written in a form and language that is consistent with the documentation used for engineering contracts, to allow for the integration into the civil and mechanical contract specifications. It is essential that the Environmental Management Programme be released as part of the tender information for the following reasons:

- The Contractor is made aware of the Environmental Management Programme and obligations at tender stage already (including environmental requirements beyond the technical scope of work, such as site exit and rehabilitation);
- The Contractor is able to cost and source necessary resources to ensure compliance with the Environmental Management Programme; and
- Inclusion of the Environmental Management Programme within the contract ensures that the Employer's legal obligations become contractually binding on the Contractor.

The applicant has an obligation to ensure compliance by various parties with a suite of environmental requirements related to the maintenance/construction phase. The compilation of the Environmental Management Programme, its integration into the tender documentation along with any conditions of authorisation, serves as part of meeting this obligation.

To ensure that these obligations continue to be fulfilled during the construction process, it behoves the Employer (Applicant) to ensure that the appointed Contractor/s possess the requisite environmental management experience and expertise, and have made provisions for meeting compliance with the Construction Environmental Management Programme. Accordingly, it would be prudent for the Employer to ensure that environmental considerations form part of the tender adjudication process. Key considerations in this regard would be as follows:

- To request, as part of the tender process, that the Contractor provide his environmental policy and indicate how this will influence the way the construction process is approached and managed on site:
- To request a list of the Contractor's previous experience in terms of the onsite implementation and management of environmental requirements;
- To request an indication of the proposed organisational structure for the Contract, and specifically for the Contractor to indicate which staff would be acting in the capacity of Environmental Officer, providing a CV indicating relevant expertise, and which senior staff member would have overall responsibility for ensuring compliance by the Contractor with the specified environmental requirements; and
- To confirm, upon receipt of the Tender, that the Contractor has made sufficient allowance in his Tender Price for meeting the various environmental requirements outlined in the Environmental Management Programme, including the final site rehabilitation requirements that may continue to a number of years following completion of the maintenance/construction phase.
- During the tender adjudication process for each Contract, each Contractor should be scored in terms of the aforementioned considerations and allocated an environmental competency score. This score should form a key consideration in the final decision-making regarding the award of the various contracts.

6. REVIEW, DEVELOPMENT, AND AMENDMENT OF THE ENVIRONMENTAL MANAGEMENT PROGRAMME

The Environmental Management Programme in its current form serves as a minimum requirement. It is inconceivable that all scenarios and construction activities can be adequately identified and addressed at this stage. Attempts to create an all-inclusive and rigid Environmental Management Programme can result in contractual challenges and disputes during the implementation phase, which in turn can indirectly result in additional environmental impacts. The approach should therefore be adopted of ensuring that a hierarchy of suitably qualified and experienced environmental staff is employed within the various organisations (i.e. Employer, Project Manager, Contractor and the Environmental Control Officer) that are able to identify and respond to environmental challenges arising out of the construction activities, and who can collaborate and further refine the Construction Environmental Management Programme and develop work procedures where required in the spirit of environmental best practice.

The Environmental Control Officer, in consultation with the Employer, Project Manager, and Contractor, shall identify where substantive Environmental Management Programme amendments and additions are required, through routine auditing. Such amendments and additions shall be submitted in writing to the MDEDET for approval.

Where amendments and additions are not deemed substantive by the Environmental Control Officer, such amendments will be issued to the Contractor in the form of a Site instruction.

7. LEGAL REQUIREMENTS

All construction activities shall be executed in accordance with all statutory requirements in terms of the prevailing environmental legislation and in so doing shall be undertaken in a manner that will minimise the impacts on the surrounding environment, the public and adjoining landowners.

The Contractor shall implement all necessary environmental protection measures in each area or associated with specific activities before any construction work may proceed. The Environmental Control Officer, Employer and / or Project Manager may suspend the Works at any time in terms of the Conditions of Contract should the Contractor, in the Environmental Control Officer, Employer or Project Manager's opinion, fail to implement, operate or maintain any environmental protection measures adequately. All costs and damages arising from such work stoppage associated with non-compliance and any remedial actions shall be for the Contractor's account.

Apart from the requirements of the EMP, the Employer and its Contractors will be required to comply with the full suite of South African Legislation concerning the natural environment, pollution and the built environment. This legislation includes but is not limited to:

- Conservation of Agricultural Resources Act (No 43 of 1983) and the regulations dealing with declared weeds and invader plants as amended from time to time;
- Environment Conservation Act (No 73 of 1989), including the noise regulations and litter controls promulgated thereunder;
- Hazardous Substances Act (No 15 of 1973);
- Health Act (No 63 of 1977);
- Minerals and Petroleum Resources Development Act (No 28 of 2002);
- National Building Regulations and Building Standards Act (No 103 of 1977);
- National Environmental Management Act (No 107 of 1998);
- National Environmental Management: Air Quality Act (No 57 of 2003);
- National Environmental Management: Biodiversity Act (No 10 of 2004);
- National Environmental Management: Protected Areas Act (No 10 of 2004);
- National Forest Act (No 84 of 1998);
- National Heritage Resources Act (No 25 of 1999);
- National Veld and Forest Fire Act (No 101 of 1998);
- National Water Act (No 36 of 1998);
- Occupational Health and Safety Act (No 85 of 1993), including the Major Hazard Installation Regulations and Construction Regulations promulgated thereunder; and
- Fertilizer, Farm feeds, Agricultural Remedies and Stock Remedies Act (No 36 of 1947).

8. RESPONSIBILITIES OF ROLEPLAYERS

8.1 The Authorities

As the competent environmental authority, MDEDET has the responsibility to ensure that the proponent, viz. Employer, complies with the conditions of authorisation as well as the requirements in terms of the broader environmental legislation, specifically the National Environmental Management Act. Compliance would be confirmed via the following mechanisms:

- Receipt and review of environmental compliance report as required; and
- *Ad hoc* and planned site inspections by the Compliance and Enforcement section of MDEDET.

8.2 The Employer

As the Proponent, the Employer must ensure that the implementation of the project complies with the requirements of NEMA, as well as any obligations emanating from other relevant environmental legislation. Although part of this obligation is being met by the development of the Construction Environmental Management Programme, and its integration into the tender documentation, as well as the appointment of the Environmental Control Officer, the Employer cannot delegate or defer these obligations. Accordingly, the Employer must retain an oversight role and retain some key roles and responsibilities as it relates to environmental management during the construction of the poultry abattoir. These are outlined below.

The Employer, as an organisation must ensure that adequate funding is made available for the implementation and monitoring of the environmental controls.

The responsibilities of the Employer include the following:

- Identify and appoint a suitably qualified independent environmental control officer (ECO) and issue a clear terms of reference;
- Be fully conversant with the EMP for the project, the conditions therein and all relevant environmental legislation;
- Ensure that all the Maintenance/construction Environmental Management Programme, legal constraints and Employer standards and procedures pertaining to the project, specifically with regards to environmental management, are highlighted to the Project Manager and Contractor(s) so that they are aware of these;
- Ensure that the Maintenance/construction Environmental Management Programme is correctly implemented throughout the project by means of site inspections and monthly site meetings;
- The Employer, in consultation with the Department of Environmental Affairs, shall provide the Environmental Monitoring Committee with a clear Terms of Reference - once the Environmental Monitoring Committee has been constituted, the draft Terms of Reference would be distributed to the Environmental Monitoring Committee members for review and ratification;

- Make financial provisions for the inclusion of an Environmental Monitor as part of the Project Manager's Contract, inclusive of all staff and equipment resources needed to execute their functions; and
- Issue *ad hoc* instructions, corrective action requests, or initiate punitive proceedings where non-compliances are not adequately addressed.

8.3 The Environmental Control Officer

The Employer must appoint a suitably qualified and independent Environmental Control Officer to monitor compliance with the requirements of the Maintenance/construction Environmental Management Programme and the environmental legislation on a monthly basis on behalf of the Employer. To fulfil these requirements, the Environmental Control Officer would need to have relevant on site experience and would need to be based relatively close to the site for the duration of the construction/maintenance phase. The Environmental Control Officer could be an Employer employee, as long as they had the requisite environmental training and experience.

The Environmental Control Officer will be responsible for monitoring, reviewing, and verifying compliance by the Contractor with the Maintenance/construction Environmental Management Programme. Accordingly, the Environmental Control Officer would be required to:

- Be fully knowledgeable of the contents of the Maintenance/construction Environmental Management Programme, specifically as articulated in the Maintenance/construction Environmental Management Programme attached to each Contract;
- Be fully knowledgeable of the contents of all relevant environmental legislation and Employer environmental policies and procedures, and ensure compliance with these;
- Ensure that compliance with the Maintenance/construction Environmental Management Programme are monitored and verified through regular and comprehensive inspections of the site and surrounding areas, and that the results of these inspections are captured in writing;
- Ensure that if the Maintenance/construction Environmental Management Programme is not followed, appropriate measures are undertaken to address this; and
- Report to the Employer and MDEDET every month regarding compliance with the requirements of the Maintenance/construction Environmental Management Programme, and environmental legislation.

In meeting the aforementioned obligations, the Environmental Control Officer's specific duties would include the following:

- Assisting the Project Manager in ensuring necessary environmental authorisations and permits have been obtained;
- Confirming that activities on Site comply with legislation;
- Monitoring and verifying that the conditions of the Maintenance/construction Environmental Management Programme are adhered to at all times and requiring the Contractor to take action if these are not followed;
- Monitoring and verifying that environmental impacts are kept to a minimum;
- Giving a report back on the environmental issues at the monthly site meetings and other meetings that may be called regarding environmental matters;
- Inspecting the Site and surrounding areas regularly with regard to compliance with the Maintenance/construction Environmental Management Programme;

- Ensuring that a register of complaints is kept by the Contractor and that all complaints are appropriately recorded and addressed;
- Ensuring that the requisite environmental induction occurs for all new personnel coming onto site;
- Recommending the issuing of penalties for contraventions of the Maintenance/construction Environmental Management Programme;
- Advising on the removal of person(s) and/or equipment, not complying with the Maintenance/construction Environmental Management Programme, from site;
- Completing the requisite environmental reporting including a monthly environmental compliance report and incident reports for submission to the Employer and MDEDET;
- Keeping a photographic record of progress on Site from an environmental perspective; and
- Attending the site meetings to report on construction/maintenance phase monitoring program compliance.

8.4 The Project Manager

The Project Manager (often referred to as the Engineer or Consultant) is responsible for the following:

- Issuing all instructions to the Contractor;
- Providing adequate resources for the implementation of the EMP (could include financial and human resources)
- Administering all contractual issues, including any penalties or punitive measures initiated as result of non-compliances; and
- Ensure that issues pertaining to environmental management are handled and resolved.

8.5 The Contractor

By virtue of the environmental obligations delegated to the Contractor through the Contract Document, all staff (including subcontractors and staff), suppliers, and service providers appointed for the project would be responsible for:

- Ensuring adherence by providing adequate staff and provisions to meet the requirements of the Maintenance/construction Phase Environmental Management Programme;
- Ensuring that any instructions issued by the Project Manager, on the advice of the Proponent or Environmental Control Officer, are adhered to;
- Ensuring the representation of a report at each site meeting, documenting all incidents that have occurred during the period before the site meeting;
- Ensuring that a register of all the transgressions issued by the Environmental Control Officer is kept in the site office;
- Ensuring that a register of all public complaints is maintained; and
- Ensure that all employees, including those of sub-contractors receive training before the commencement of construction in order that they can constructively contribute towards the successful implementation of the environmental requirements of the Contract.

9. ENVIRONMENTAL MONITORING PROGRAMME

The environmental monitoring programme is to be administered by the Environmental Control Officer

The Environmental Control Officer shall undertake inspections of all construction and Contractors' areas on a monthly basis, assessing environmental aspects as presented in this Construction Environmental Management Programme.

Should there be any incident on site affecting the environment, irrespective of whether it is the result of non-compliance or not, the following lines of communication should be implemented:

- ~ All incidents must to be reported to the relevant authority, Ntusi Dairy Management and the contractor immediately;
- ~ All issues of non-compliance must be reflected in the environmental reporting, and an incident report must be completed for all environmental incidents (*i.e.* any environmental degradation resulting from the construction activities, irrespective of whether it is the result of non-compliance or not); and
- ~ Environmental Incident reports must address the following aspects:
 - Description of the incident,
 - Remedial action required, including the deadline for such action,
 - Relevant/ supporting documentation, *i.e.* providing evidence of the incident and the cause of the incident,
 - Relevant diagrams to support the description of the incident and/ or the remedial action to be taken.

9.1 Penalties

The Contractor will comply with the environmental management requirements of this EMP on an on-going basis, any failure on their part to do so will entitle the Project Manager, in consultation with the ECO to certify the imposition of a fine. The value of the fine will be agreed between the PM and ECO based on the nature, extent and duration of the offence and subsequent environmental damage. Such penalties shall be payable in addition to any remediation costs for correction of environmental damage as a result of non-compliance to this EMP, that will also be for the Contractor's account. Time penalties may also be awarded by the contract's manager where the contractors do not comply. These details are to be included into the contracts.

Note that the following is applicable:

- In terms of the Conventional Penalties Act (1962) a creditor is not entitled to recover both the penalty and damages,
- Accordingly, where a Contractor causes damage, DARDLA can either enforce a penalty or make the Contractor make good the damage, but not both.

The Contractor is deemed NOT to have complied with this specification if:

- Within the boundaries of the site, site extensions and access roads there is evidence of contravention of the requirements of the EMP,
- Environmental damage ensues due to negligence,

- The Contractor fails to comply with corrective or other instructions issued within a specific time,
- The Contractor fails to comply with a site instruction given by the Engineer based on the ECO report.
- The Contractor fails to respond adequately to complaints from the public,
- Legal action is instituted against the developer in terms of Environmental laws.

Payment of any fines in terms of the contract will not absolve the offender from being liable from prosecution in terms of any law.

PART C: PLANNING AND DESIGN PHASE

<i>Issue/Activity</i>	<i>Action Required</i>	<i>Responsible person</i>	<i>Frequency</i>
1. <u>EMP</u>	An approved ECO must be appointed before any construction activities commence. It is recommended that the ECO is on site once a month as a minimum. This EMP must be made binding to the main contractors as well as individual contractors and should be included in tender documentation for the construction contract. The contractors must also ensure that the construction crew is aware of the requirements set out in the EMP for this development prior to commencing activities on site.	Developer	Prior to construction starting.
2. <u>Site Preparation- Sound environmental principles need to be adopted in the preparation of the site.</u>	a) Erect a perimeter fence around the works area to ensure sufficient access control, protection of contractor's equipment, tools, plant and equipment.	Contractor	Once-off
	b) Clearly mark off the "no go" area of the central wetland and ensure all workers are aware of the repercussions of infringing upon these areas.	Contractor	Prior to construction, monitor continuously
	c) Clearly demarcate all material lay down areas.	Contractor	Once off
	d) Ensure that perimeter fence is kept and maintained in good working order for the	Contractor	Continuous

	total duration of the construction project.		
	e) Do not use the site for any other purpose other than for the proper carrying out of the Works under the Contract.	ECO	Bi-weekly
	f) Marking for surveying and other purposes must be done using pegs, beacons or rope and droppers.	Contractor	Continuous
	g) Utilise the method of de-bushing most appropriate for the environment and species in question. Favour mechanical rather than chemical methods wherever possible	Contractor	Continuous
	h) No vegetation on neighbouring properties may be damaged or utilised	Contractor / ECO	Continuous
	i) Exotic (invasive) flora – to be removed from the site; a weed control program implemented and spread of exotic invasive species to be controlled.	Contractor / ECO	Continuous
	j) Before any construction, borrowing and/or quarrying, the entire available topsoil layer (except in the area designated “no development”) has to be stripped. Ensure that it is stockpiled separately from subsoil and rocky material.	Contractor	Once off
	k) In the absence of a recognisable topsoil layer, strip the upper most 300mm of soil.	Contractor	Once off
	l) Co-ordinate excavation to limit unnecessarily prolonged exposure of stripped areas and stockpiles. Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area.	Contractor	Once off
	m) Strip and stockpile herbaceous vegetation, overlying grass and other fine organic matter along with the topsoil.	Contractor	Once off

	n) Do not strip topsoil when it is wet.	Contractor	Once off
	o) Store stripped topsoil in an approved location and in an approved manner for later re-use in the rehabilitation process.	Contractor	Once off and monitor continuously
3. <u>Construction site Careful planning of the Construction site can ensure that time and costs associated with environmental management and rehabilitation is reduced.</u>	3.1 Structures		
	a) Erect all temporary buildings and structures; including offices, workshops, and stores, within predetermined zones as per the approved site plan.	Contractor	Once off
	b) Ensure that essential services (including cooking areas, appropriate sanitation and drinking water facilities) are provided for the construction site.	Contractor	Once off
	c) Scavenger and weather proof bins will be provided in a suitable waste storage area for temporary storage. These bins will be emptied and transported to an appropriate facility once a week.	Project manager	Weekly monitoring
	d) Provide a designated place for food storage, preparation and consumption. Food storage must be separate from waste storage areas.	Contractor/ Project manager	Initial set up period
	e) Ensure that cooking facilities, as approved by the Project Manager is made available - preferably gas or electricity. Ensure regular checks of the mentioned facilities as per OSH Act and/or site safety plan by the relevant appointed personnel.	Contractor/ Project manager	Initial set up period
	f) The Contractor must attend to drainage of the construction site to avoid standing water and / or sheet erosion.	Contractor	Continuous
	3.2 Storage areas		
a) A suitable and safe area for storage of the construction material is to be provided: choice of location for storage areas must take into account prevailing winds, distance to water bodies (no storage within 100 m of the wetland/watercourse) and general on-site topography.	Contractor / Project Manager	Initial set up period	
b) Storage areas must be designated, demarcated and fenced if necessary	Contractor / Project manager	Initial set up period	

	c) Storage areas should be secure so as to minimise the risk of crime. They should also be safe from access by children/ animals etc.	Contractor/ Project manager	Initial set up period
	d) Hazardous materials such as fuel, oil, paint, herbicide and insecticides shall be stored in bermed areas or under lock and key, as appropriate, in well ventilated areas.	Contractor	Continuous
	e) Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances to be used on site. Where possible and available, MSDSs should additionally include information on ecological impacts and measures to minimise negative environmental impacts during accidental releases or escapes.	Contractor/ Project manager	Continuous
	f) Fire prevention facilities must be present at all storage facilities.	Contractor	Continuous
	g) Sufficient care must be taken when handling these materials to prevent pollution.	Contractor	Continuous
	3.3 Roads and Access		
	a) Choice of access routes should take into account minimum disturbance to public and neighbours in close proximity to the site.	Contractor	Continuous
	b) Wherever possible existing roads should be used to avoid the disturbance of additional land or natural veld.	Contractor	Initial set up period
	c) Runoff from roads must be managed to avoid erosion and pollution problems.	Contractor	Weekly and after heavy rains
4. <u>Alien Invasive Species</u>	a) Areas such as watercourses, wetlands, and riparian areas must be prioritised.	Contractor/ ECO	Prior to clearing and construction
<i>It is important at the outset of a project to establish a program for the eradication and control of alien invasive vegetation</i>	b) The ECO is responsible for the identification of alien invasive species. The specie-specific method of control and eradication should be implemented.	ECO	Prior to clearing
	c) The ECO is responsible to provide the specific training required to implement the required control method. Only personnel who have been appropriately trained are allowed to engage in this activity.	ECO	Prior to clearing

	<p>d) All personnel tasked to engage in the process of alien invasive vegetation control needs to receive proper training in the following:</p> <ul style="list-style-type: none"> - Methods and control measures. - Equipment and techniques - Types of herbicide (selective and non-selective) - Health and safety issues - Safety gear 	ECO/ Contractor	Prior to clearing
	<p>e) Prior to the actual eradication process the ECO or contractor must ensure the following:</p> <ul style="list-style-type: none"> - All personnel have adequate training required - All personnel have essential safety equipment - Only identified alien species are targeted - Ensure correct application of herbicides 	ECO/ Contractor	Prior to clearing
	<p>f) Team supervisors must receive training in the following:</p> <ul style="list-style-type: none"> - Herbicide awareness. Basic training on the mode of action of herbicides. - Operator safety. Handling of concentrates and spray mixtures, personal hygiene and protective clothing. - Safe storage of products at depots and operational sites and spray mixtures at operational sites. - Mixing. Handling of concentrates and mixing techniques. - Safety procedures to be observed during transportation of product spray mixtures, equipment and personnel. - Care and maintenance of application equipment, saws etc. - Record keeping in respect of quantities of product/spray mixtures used, area treated, person hours per area/operation, stock control - Planning. Advanced planning for follow-up operations, transportation, equipment and spares requirements, product procurement and availability. Team management - First aid. Actions to be taken in case of accidental contamination, suspected and actual poisoning, chronic poisoning, eye contamination and other physical injuries. - Health of operators. Persons unsuitable for use as application operators would include e.g. chronically ill, disabled, pregnant women. Awareness of possible allergic reactions. Wearing of protective apparel. 	ECO/ Contractor	Prior to clearing

	- Managing major and minor spills, accident sites.		
	g) Spill kits must be available on site in case of any accidental contamination or spillages.	Contractor	Prior to clearing

PART D: CONSTRUCTION PHASE

<p><u>1. Maintenance of Construction site</u></p> <p><u>Conscientious maintenance of the Construction site can ensure that time and costs associated with environmental management and rehabilitation are reduced.</u></p>	<p>1.1 Maintenance of Access</p> <p>a) Contractors should ensure that access roads are maintained in good condition by attending to potholes, corrugations and storm water damage as soon as these develop.</p>	Contractors	Weekly inspection
	<p>b) If necessary, staff must be employed to clean surfaced roads adjacent to construction sites where materials have been spilt.</p>	Contractor	When necessary
	<p>1.2 Surfaces</p> <p>a) The Contractor must monitor and manage drainage of the camp site to avoid standing water and soil erosion.</p>	Contractor	Continuous
	<p>b) The construction site must be fenced off and demarcation of material lay down areas must precede all activities on site. Run-off from the camp site must not discharge into neighbouring properties or adjacent wetland/riparian belt</p>	Contractor	Initial set up period
	<p>1.3 Ablutions</p> <p>a) An adequate number of portable/ chemical toilets shall be supplied (1 toilet per 15 users is the norm). The use of septic tanks, soak ways or pit latrines is strictly prohibited.</p>	Contractor	Initial set up period
	<p>b) Do not locate any site toilet, sanitary convenience, within a horizontal distance of 100m of the identified wetland or riparian zone.</p>	Contractor	Initial set up period
	<p>c) The Contractor is to ensure that open areas or the surrounding bush are not being used as a toilet facility.</p>	Contractor	Continuous
	<p>d) Regular inspections shall be carried out to ensure toilets are kept in a hygienic state.</p>	Contractor	Continuous

e) Chemical toilets are to be cleaned regularly and effluent disposed of off-site at an approved municipal sewage system.	Contractor	Weekly
f) Toilet paper shall be supplied to all toilets. Combine drinking water facilities with hand washing facilities near site toilets.	Contractor	Initial set up period
g) Toilet facilities will be screened and put as far away from the neighbours and roads as possible	Contractor	Initial set up period
1.4 Camp/site Waste Disposal		
a) Refuse generated from the campsite, construction area, storage area or any other area shall be collected and placed in suitable covered refuse bins on a daily basis. A litter patrol around the construction camp is to take place every day to collect any litter that may have been strewn around.	Contractor	Daily
b) Bins and/or skips should be emptied regularly and waste should be disposed of at a registered landfill site.	Contractor	Weekly
c) All refuse containers are to be covered at all times.	Contractor	Continuous
1.5 Provision of Water		
a) Sufficient potable water shall be provided for drinking, cooking and ablutions.	Contractor/ Project manager	Continuous
b) Great care is to be taken that the water supply is not contaminated in any way.	Contractor	Continuous
1.6 Provision of Food preparation and eating areas		
a) Provide a designated place for food storage, preparation and consumption. Food storage must be separate from waste storage areas.	Contractor/ Project manager	Once off
b) Eating areas should be regularly serviced and cleaned to ensure the highest possible standards of hygiene and cleanliness.	Contractor	Continuous
c) All litter throughout the site should be picked up and placed in the bins provided	Contractor	Daily

	d) Open fires should not be allowed. Fires for cooking should be limited to fire places designed for the purpose. Gas is more preferable	Contractor	Continuous
2. <u>Staff conduct</u>	2.1 Environmental Education and Awareness		
	a) Ensure that all site personnel have a basic level of environmental awareness training.	Project Manager/ ECO	During staff induction & on going
	b) It is essential that construction personnel be made aware of the sensitivity of the “no development” zones (the wetland/riparian areas) and that their movements be limited to the construction areas only, which needs to be enforced.	ECO/ Contractor	During staff induction, to be monitored continuously
	c) It is the Contractor’s responsibility to provide the site foreman with no less than 1 hour’s environmental training and to ensure that the foreman has sufficient understanding to pass this information onto the construction staff.	Contractor	Prior to moving onsite
	d) Translators are to be used where necessary.	Contractor	Continuous
e) The need for a “clean site” policy also needs to be explained to the construction workers.	Contractor	During staff induction and on going	
	2.2 Worker conduct on site		
	a) A general regard for the social and ecological well-being of the site and adjacent areas (especially the untransformed areas), is expected of the site staff.	Contractor	Continuous

	<p>b) Workers need to be made aware of the following general rules:</p> <ul style="list-style-type: none"> i.) No alcohol / drugs to be present on site. ii.) No firearms allowed on site or in vehicles transporting staff to / from site, (unless used by security personnel). iii.) Prevent excessive noise. iv.) Prevent unsocial behaviour. v.) Bringing pets onto the site is forbidden vi.) No harvesting of firewood from the site or from the areas adjacent to it vii.) Construction staff is to make use of the facilities provided for them, as opposed to ad-hoc alternatives. (e.g.: fires for cooking; the use of surrounding bush as a toilet facility; are forbidden). viii.) Trespassing on private / commercial properties adjoining the site is forbidden ix.) Driving under the influence of alcohol is prohibited. 	Contractor	Continuous
	2.3 Fauna and Flora		
	a) Capture/snaring of fauna is strictly prohibited	ECO	Continuous
	b) Anyone found doing the above-mentioned will be prosecuted or disciplined	ECO	Continuous
	c) Faunal species found should be trans located	ECO	Prior to clearing
	d) No vegetation on neighbouring properties (or in the untransformed “no development” zone) is to be used for firewood. Permits are required for removal, relocation and pruning of protected species (permits can be obtained from MPTA or DWAF)	Contractor	Continuous
<p>3. <u>Dust/Air pollution</u> <u>Main causes of air pollution are dust from vehicle movements and stockpiles, vehicle emissions and fires.</u></p>	a) Phasing of operations will avoid the exposure of soil and sand for prolonged periods.	Contractor	Monitor daily
	b) If necessary, the construction site shall be watered (or an appropriate alternative method used) to control possible dust fallout.	Contractor	Monitor daily
	c) Vehicles travelling to and from the construction site must adhere to speed limits so as to avoid producing excessive dust.	Contractor	Continuous
	d) Vehicles and machinery are to be kept in good working order and to meet manufacturer’s specifications for safety,	Contractor	Weekly

	fuel consumption etc.		
	e) No fires are allowed on site unless first cleared with the ECO and Project Manager.	Contractor/ ECO	As necessary
	f) Stockpiles may cause dust and so must be managed in accordance with the guidelines in Materials Management in section 8.	Contractor	Daily
4. <u>Soil Erosion</u>	4.1. <u>Topsoil stripping and stockpiling</u>		
	a) Once an area has been cleared of vegetation, the top layer (nominally 150mm) of soil should be removed and stockpiled in a designated area. Topsoil is to be handled twice only – once to strip and stockpile, and once to replace and level.	Contractor	Once-off, monitor regularly
	b) Should there be a need to stockpile soil; those stockpiles must be covered in excessively windy conditions	Contractor	As required
	c) No stockpiles or construction materials may be stored or placed within any drainage line (including the wetland) on site or in close proximity to storm water drains.	Contractor	Once-off, monitor regularly
	d) Position topsoil stockpiles on the higher side of a disturbed area.	Contractor	Once-off, monitor regularly
	e) Ensure that all topsoil is stored in such a way and in such a place that it will not cause the damming up of water, erosion gullies, or wash away itself.	Contractor	Once-off, monitor regularly
	f) Do not stockpile topsoil in heaps exceeding 2m in height.	Contractor	Continuous
	g) Protect topsoil stockpiles from erosion.	Contractor	Continuous
	h) Fencing may not cause erosion and may not impede the flow of any watercourse or natural drainage. Fencing must be monitored throughout the construction phase, and any signs of erosion resulting from it must be remedied immediately.	Contractor / ECO	Continuous
	i) Remove exotic / invasive plants and broad leaf weeds that emerge on topsoil stockpiles	Contractor	Continuous

j) Ensure that topsoil is at no time buried, mixed with spoil (excavated subsoil), rubble or building material, or subjected to compaction or contamination by vehicles or machinery. This will render the topsoil unsuitable for use during rehabilitation.	Contractor	Continuous
k) The Contractor will be held liable for the replacement of any topsoil rendered unsuitable for use during rehabilitation, for reasons due to his negligence or mismanagement on site.	Contractor	Monitor regularly
4.2. Exposed surfaces		
a) The time that stripped areas are exposed shall be minimised wherever possible.	Contractor	Monitor regularly
b) Top soiling and re-vegetation shall commence immediately after the completion of an activity and at an agreed distance behind any particular work front.	Contractor	Monitor regularly
c) Storm water control (See 5) and wind screening should be undertaken to prevent soil loss from the site.	Contractor	As each activity is completed
d) Side tipping of spoil and excavated materials shall not be permitted – all spoil material shall be disposed of as directed by the contractor.	Contractor	Continuous
e) Soils that become compacted through the activities of the development must be loosened to an appropriate depth to allow seed germination	Contractor	Continuous
f) Structures to prevent erosion must be built in areas that are prone to erosion	Project Manager	Where identified
4.3. Surface water management		
a) No water may be abstracted from any surface water body without necessary permission from DWAF for the purpose of construction unless permitted in terms of the Contract.	Contractor	Prior to construction starting
b) Monitor water consumption and ensure that all possible use is accounted for and areas of waste are identified (i.e. water used for surface wetting, for potable supply etc.).	Contractor	Monitor daily
c) Repair identified leaks and address issues of water wastage as soon as these are identified.	Contractor	Whenever identified
d) Where possible, recycle water on the construction site.	Contractor	Whenever identified

	e) Avoid over-wetting, saturation and unnecessary runoff during dust control activities and irrigation.	Contractor	Monitor daily
	f) Ensure that water abstraction points, if permitted, (i.e. from rivers, dams, etc.) do not degrade or erode as a result of leaking pipes, spills, muddy conditions or wash-aways. Rectify problems as soon as they arise.	Contractor	Monitor regularly
<p>4. Stormwater Construction activities frequently result in diversions of natural water flow resulting in concentration of flow and an increase in the erosive potential of the water. Measures in this section are aimed at reducing the erosive potential of storm water.</p>	<p>4.1 General Principles</p> <p>a) Do not drain, fill or alter in any way, any wetland, unless this forms part of the construction works (see point 7 below), or upon specific instruction by the Project Manager (who requires authorisation from DWAF in the form of a Water Use Licence).</p>	Project Manager	Monitor weekly
	b) Do not allow surface water or storm water to be concentrated, or to flow down, cut or fill slopes without erosion protection measures being in place.	Contractor	Monitor daily
	c) Earth, stone and rubble is to be properly disposed of so as not to obstruct natural water pathways over the site. i.e.: these materials must not be placed in storm water channels, drainage lines or the wetland.	Contractor	Continuous
	d) Line overflow and scour channels with stone pitching along their length and at their points of discharge to prevent soil erosion. The point of discharge must be at a point where there is dense natural grass cover.	Contractor	Continuous
	e) Ensure that channels do not discharge straight down the contours. These must be aligned at such an angle to the contours that they have the least possible gradient.	Contractor	When the need arises
	f) Locate any point of overland discharge at least 50m away from the wetland or drainage line. No surface storm water generated as a result of the development may be directed directly into any watercourse.	Contractor	Whenever the need arises
	g) Surface water rich in sediments and other pollutants must be prevented from entering any watercourse, and all mechanisms for dissipating water energy must be implemented at the inception of the construction phase.	Contractor	Continuous. Prior to construction

<p>5. <u>Water Quality (Surface and groundwater)</u></p> <p>Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality.</p>	<p>5.1. <u>General Principles</u></p>		
	a) Mixing / decanting of all chemicals and hazardous substances must take place either on a tray or on an impermeable surface. Waste from these should then be disposed of to a suitable waste site.	Contractor	Regular Monitoring.
	b) The storage and handling of fuel, lubricants and other chemicals must be in especially demarcated impervious and bunded areas	Contractor	Prior to start of construction – monitor regularly
	c) Every effort should be made to ensure that any chemicals or hazardous substances do not contaminate the soil or groundwater on site. It is the holder of the RoD's responsibility to rectify any source of pollution from the development and to take appropriate measures to prevent any pollution of surface as well as groundwater.	Contractor / Developer	Regular Monitoring.
	d) Care must be taken to ensure that run-off from vehicle or plant washing does not enter the ground water.	Contractor	Regular
	e) Wash water must pass through a French drain system before entering the environment.	Contractor	Monitoring
	f) Ensure that no storm water is allowed to enter any drainage installation for the reception, conveyance, storage and / or treatment of sewage	Contractor	Regular monitoring
	g) Ensure that water passing through vehicle wash bays and workshops pass through oil baffles / oil traps / oils separators before passing into conservancy tanks.	Contractor	Regular Monitoring
	h) Treat all oil sludge collected in the said traps, including sump liners, as hazardous waste	Contractor	Regular Monitoring
	i) Take special care during rainy periods to prevent the contents of sumps and drip trays from overflowing.	Contractor	Whenever the need arises
j) Site staff shall make use of Municipal water (or another source approved by the Contractor/ECO) for all activities such as washing of equipment, dust suppression, concrete mixing, compacting etc.	Contractor	During rainy periods	

	k) All chemical toilets must be placed above the 1:100 year flood line or at least 100 m away from any water course or wet area	Contractor	Regular monitoring
	l) All maintenance and repair work of construction vehicles will be carried out within an area designated for this purpose, equipped with the necessary pollution containment measures.	Contractor	Regular monitoring
	m) The ground under the servicing and refuelling areas must be protected against pollution caused by spills and/or tank overfills.	Contractor / ECO	Regular monitoring
	n) The Site Environmental Officer must ensure that reasonable precautions are taken to prevent the pollution of the ground and water resources on and adjacent to the sites during the construction phase.	ECO	Regular monitoring
	o) No spills may be hosed down into a storm water drain or sewer, or into the surrounding natural environment. All contaminated soil is to be excavated to the depth of contaminant penetration, placed in 200 litre drums and removed to an appropriate registered landfill site.	ECO / Contractor	Regular monitoring
	p) Deflect any unpolluted water / runoff away from any dirty area	Contractor	Regular monitoring
	q) Emergency contact numbers should be referred to in order to deal with spillages and contamination of aquatic environments.	Contractor	Whenever required
- 6. <u>Wetland Protection</u> <i>All requirements of the National Water Act, 1998 (Act 36 of 1998) must be complied with as prescribed by the Department of Water Affairs and Forestry (DWAF).</i>	l) No activity such as construction camps, temporary ablution, stockpiling of topsoil, storing of equipment and material, disturbance of natural habitat, temporary access haul roads, impermeable surfacing, or any other activity must take place within 30m of the demarcated wetland boundary	Contractor / ECO	Continuous
	m) No channelling of water must take place (wetlands should retain diffuse flow),	Contractor / ECO	Initial site preparation
	n) No storm water or runoff from the roads is allowed straight into the wetlands without first slowing the flow and where possible filtering litter, etc.	Contractor / ECO	Weekly monitoring

	o) Alien vegetation should be removed from the wetland.	Contractor / ECO	Initial site preparation
	p) An Emergency Preparedness Plan should detail potential risks and anticipate where and when incidents could occur, and what steps should be taken in the event that a spill occurs.	Contractor / ECO	Weekly monitoring
7. <u>Fauna and Flora</u>	a) Prior to construction, the borders of the areas to be developed should be demarcated with danger tape in order to prohibit access by the construction team into ecologically sensitive vegetation communities (wetlands, etc.). This danger tape must be removed once construction is completed.	Contractor / ECO	Initial site preparation
	b) An Environmental Control Officer should monitor illegal access to these “no go” areas.	ECO	Weekly monitoring
	c) Construction teams must, as a contractual obligation, not be allowed to collect any medicinal plant resources from surrounding vegetation.	Contractor / ECO	Weekly monitoring
	d) In order to comply with the Conservation of Agricultural Resources Act, all listed invasive exotic plants should be targeted and controlled.	ECO	Weekly monitoring
	e) Building contractors should be made aware of the necessity to dump any building rubble at approved off-site facilities.	Contractor / ECO	Weekly monitoring
	f) Building contractors are not allowed to dump any building rubble on site, and if they are, then immediate steps must be taken to clean the area and prevent future dumping.	Contractor / ECO	Weekly monitoring
	g) Penalties should be levied on any contractor who does not comply.	ECO	Weekly monitoring

	h) Any evidence of poaching must be followed up by the Environmental Control Officer, and where possible, perpetrators should be prosecuted under the Mpumalanga Nature Conservation Act	ECO	Weekly monitoring
	i) All topsoil removed during clearing of roads and housing footprints should be stockpiled for later use such as landscaping gardens and / or rehabilitating disturbed areas. Stockpiling must not take place within any drainage lines.	ECO	As required
	j) Cut-off drains diverting stormwater around the perimeter of the development should be professionally designed to handle expected run-off and prevent erosion	Contractor / ECO	As required
	k) Outflow from cut-off drains and storm water diversions should be attenuated sufficiently to prevent erosion of receiving environment	Contractor / ECO	Initial site preparation
8. <u>Materials Management</u>	8.1. Borrow material The use of gravel and / or sand from borrow / gravel pits must adhere to all applicable legislation in terms of authorisation and permits	Contractor / Engineer	Prior to construction
	8.2. Stockpiling	-	-
	a) Stockpiles should not be situated such that they obstruct natural water pathways.	Contractor	As necessary
	b) Stockpiles should not exceed 2m in height unless otherwise permitted by the Contractor (in consultation with the ECO).	Contractor / ECO	Monitor daily
	c) If stockpiles are exposed to windy conditions or heavy rain, they should be covered either by vegetation or cloth, depending on the duration of the project.	Contractor	As necessary
	d) Stockpiles may further be protected by the construction of berms or low brick walls around their bases.	Contractor	As necessary
	e) Stockpiles should be kept clear of weeds and alien vegetation growth by regular weeding.	Contractor	Monthly checks
	8.3. Handling Hazardous Materials		
	a) All concrete mixing must take place on a designated, impermeable surface.	Contractor	Continuous

	b) No vehicles transporting concrete to the site may be washed on site.	Contractor	Continuous
	c) Lime and other powders must not be mixed during excessively windy conditions.	Contractor	As necessary
	d) All substances required for vehicle maintenance and repair must be stored in sealed containers until they can be disposed of / removed from the site.	Contractor	Continuous
	e) Hazardous substances / materials are to be transported in sealed containers or bags.	Contractor	Continuous
	f) Spraying of herbicides / pesticides should not take place under windy conditions and must comply with OHSAs specs and other chemical handling laws.	Contractor	Initial set-up /As necessary
	g) The emergency numbers should be consulted should any accidents / spillages of hazardous substances and / or materials take place. The Project Manager is to outline an emergency plan for dealing with accidents / spillages of hazardous materials. This statement must be handed to the Contractor.	Contractor / Project Manager	Initial set-up/As necessary
9. <u>Waste Management</u> Definition: “Refuse” refers to all construction waste (such as rubble, asphalt millings, cement bags, waste cement, timber, cans, other containers, wire and nails), household and office waste.	9.1. General waste management a) Refuse must be placed in the designated skips / bins which must be regularly emptied. These should remain within demarcated areas and should be designed to prevent refuse from being blown out by wind. b) In addition to the waste facilities within the construction site, provision must be made for waste receptacles to be placed at intervals along the work front. c) Littering on site is forbidden and the site shall be cleared of litter at the end of each working day. d) Recycling is to be encouraged by providing separate receptacles for different types of waste and making sure that all staff is aware of their uses.	Contractor Contractor Contractor Contractor	Continuous Continuous Daily Continuous
	9.2. Waste Disposal a) Solid i.) Where necessary, dedicate a storage area on site for the collection of construction waste.	Contractor	Before construction begins

	ii.) Unless otherwise specified by the Project Manager, remove stored domestic waste to the nearest registered solid waste disposal facility (Piet Retief Landfill site).	Contractor	On a weekly basis
	iii.) Ensure that solid waste is transported properly, avoiding waste spills en-route.	Contractor	Continuous
	iv.) No solid waste may be burned on site	Project manager	Continuous
	b) Liquid		
	i.) Any chemical toilets used on site shall be cleaned regularly and waste disposed of by a registered waste contractor.	Contractor	Monitor weekly
	c) Hazardous		
	i.) Hazardous waste disposal must be carried out by an approved waste Contractor. Waybills for this should be provided.	Contractor	Continuous
	ii.) A sump (earth or other) must be created for concrete waste. This is to be de-sludged regularly and the cement waste is to be removed to a tip site as approved by the local municipality.	Contractor	Monitor weekly
	iii.) Collect any hazardous waste in receptacles located on a drip tray on site pending disposal.	Contractor	Monitor daily
	iv.) Retain waste oils and batteries for recycling by the supplier wherever possible.	Contractor	Monitor weekly
	v.) Regularly dispose of all hazardous waste not earmarked for reuse, recycling or resale at a registered hazardous waste disposal site.	Contractor	Monitor weekly
	vii) Contain chemical spills, and arrange for clean-up / control by the supplier, or by professional pollution control personnel.	Contractor	As soon as possible
10. <u>Social Impacts</u>			
Regular communication between the Contractor and Interested and Affected Parties (I&AP's) – Especially the relevant neighbours	a) Contractor's activities and movement of staff to be restricted to designated construction areas.	Contractor	Continuous
	b) Construction must be limited to normal working hours (07h00 – 17h00).	Contractor	Continuous
	c) Should the construction staff be approached by members of the public or other stakeholders, they should assist them in locating the Contractor, or provide a number on which they may contact the Contractor.	Contractor	Continuous

<i>and downstream users is important for the duration of the contract.</i>	d) Appropriate notification signs must be erected to warn the public of the dangers of the construction site.	Contractor	Prior to construction
	e) The conduct of the construction staff when dealing with the public or other stakeholders shall be in a manner that is polite and courteous at all times.	Contractor	Continuous
	f) The Contractor is to inform neighbours in writing of disruptive activities at least 24 hours beforehand. This can take place by way approved of by the I&AP's (especially the adjacent homes) and the Contractor.	Contractor	At least 24 hours prior to the activity taking place
	g) Any complaints received from the public during the construction period must be attended to as soon as possible and addressed to the satisfaction of all concerned.	Contractor	As the need arises
	h) Contractor must take measures to discourage labourers from loitering.	Contractor	Continuous
<u>11. Crime, safety and security</u>	a) All necessary signage and traffic measures, such as speed limits, must be implemented for safe movement of vehicles to and from the proposed development	Contractor / Project manager	Once-off and monitored weekly
	b) The site and crew are to be managed in strict accordance with the Occupational Health and Safety Act, 1993 (Act No.85 of 1993) and the National Building Regulations.	Contractor	Daily
	c) The contractor must supply his own security arrangements for the construction site.	Contractor	Once-off; continuous monitoring
	d) Ensure the contact details of the police or security company and ambulance services are available on the site.	Contractor	Continuous
	e) Ensure that the handling of equipment and materials is supervised and adequately instructed.	Contractor	Daily
	f) Limit access to the construction site only to the workforce.	Contractor	Daily
	g) Adequate facilities must be available on site for the emergency treatment of staff and public.	Contractor	Daily

	h) Do not allow the movement of public within the development site by posting notices at the entrance gates.	Contractor	Weekly
12. <u>Noise Pollution</u>	a) Unless otherwise specified by the Project Manager, normal work hours will apply (i.e. from 07h00 to 17h00, Mondays to Saturdays).	Contractor/ Project Manager	Continuous
	b) No loud music is permitted on site.	Contractor	Continuous
	c) Noise from labourers to be controlled	Contractor	As necessary
	d) Noise suppression should be applied to all construction equipment	Contractor	As necessary
	e) If noise levels at the boundaries of the site exceed 7dB above ambient levels, then the local health authorities are to be informed.	Contractor	As necessary
	f) Notify adjacent landowners of after-hours construction work and of any other activity that could cause a nuisance.	Contractor	As necessary
	g) Respond to community complaints with regard to noise generation, taking reasonable action to eliminate and/or minimise the impact.	Contractor	As necessary
	h) Where complaints cannot be addressed to the satisfaction of all parties, then the Contractor will, upon instruction by the Project Manager, provide an independent and registered Noise Monitor to undertake a survey of the noise output levels. Recommendations to reduce noise to legislated levels must be implemented.	Contractor/ Project manager	As necessary
13. <u>Visual Impacts</u>	a) Rubble and litter must be removed every two weeks or more often as the need arises and be disposed of at a registered landfill.	Contractor	Bi-weekly or as necessary
	b) Lighting on the construction site should be pointed downwards and away from oncoming traffic.	Contractor	Continuous
	c) Cluster construction activities on site	Contractor	As necessary
	d) Cordon off construction site with shade cloth if necessary	Contractor	As necessary
14. <u>Archaeological Artefacts</u>	a) Construction personnel must be sensitised to the requirements of the South African Heritage Resources Act (SAHRA).	Contractor/ ECO	As necessary
	b) All existing gravesites must be fenced	Applicant	Prior to construction

	c) Should any material of cultural or archaeological significance be encountered during construction, all activities must cease immediately and SAHRA must be informed accordingly.	Contractor/ ECO	As necessary
	d) Artefacts can only be moved once a permit is obtained from SAHRA	Specialist	As necessary
15. <u>Traffic</u>	a) Construction vehicles should use the main roads.	Contractor	Daily
	b) As far as possible, attempts should be made to ensure that high construction-related road usage coincides with low flow periods.	Contractor	Daily
	c) There should be all necessary signage in place to assist with the flow of the construction vehicles.	Contractor	Prior to construction
	d) All construction vehicle drivers are required to obey speed restrictions.	Contractor	Daily
16. <u>Site Clean-up and rehabilitation</u>	a) All structures are to be removed from site.	Contractor	Project completion
	b) The area that previously housed the construction site is to be checked for spills of substances such as oil, paint etc. and these should be cleaned up.	Contractor	Project completion
	c) All hardened surfaces within the construction site area should be ripped, all imported materials removed, and the area shall be top soiled and regressed	Contractor	Project completion
	d) The Contractor must arrange the cancellation of all temporary services.	Contractor	Project completion

PART E: OPERATION PHASE

<u>1. Site management</u>	A maintenance plan for the abattoir must be developed with regard to maintaining roads, buildings, perimeter fencing, cleaning, etc. in order to ensure that they are kept presentable and in good working order.	Applicant	Once-off, regular monitoring

<p><u>2. Performance evaluation and record keeping</u> To provide guidance during self-performance evaluations of the operation</p>	<p>a) Compile a checklist applicable to the site and the needed permits from the aspect register and the legal requirements specified and ensure that it is completed once a year. The checklist should typically include all identified aspects (as provided in the above document).</p>	Applicant	Annually
	<p>b) During this evaluation specific attention should be given to the effectiveness of the EMP's and other proposed mitigation measures.</p>	Applicant	Annually
	<p>c) Ensure that all information obtained from changed process etc. is relayed to all the applicable documents</p>	Applicant	When necessary
<p><u>5. Eradication of alien floral species</u></p>	<p>a) The use of alien invasive plants for landscaping is prohibited, and a long-term management plan for the eradication and control of existing alien invasive plants should be implemented.</p>	Applicant	Once-off, regular monitoring
	<p>b) It is recommended that after the alien plant species are removed, the natural grass or indigenous vegetation from the area be allowed to cover the bare areas where the alien vegetation used to be.</p>	Applicant	Once-off, regular monitoring
<p><u>4. Erosion</u></p>	<p>a) The storm water system, especially the discharge points, must be inspected and damaged areas must be repaired if required</p>	Applicant	Continuous, bi-annual monitoring
	<p>b) Litter blocking the storm water system must be removed.</p>	Applicant	Bi-weekly
	<p>c) Regular maintenance of the storm water system must be undertaken. This should include removal of blockages, and monitoring of stability of storm water structures to prevent any signs of erosion.</p>	Applicant	Bi-weekly, especially during rainy seasons
<p><u>5. Water quality</u></p>	<p>a) The storm water system, especially the discharge points, must be inspected and damaged areas must be repaired if required.</p>	Applicant	Continuous, bi-annual monitoring
<p><u>6. Air pollution</u></p>	<p>a) Burning of deceased animals and unusable skins must take place in an incinerator</p>	Applicant	Continuous

	b) All boilers, steam raising plant and afterburners must use clean fuels free of heavy metals and toxic wastes	Applicant	Continuous
	c) Combustion equipment and air pollution control equipment should be designed and operated to minimise the production and emission of air pollutants	Applicant	Continuous
6. <u>Ecological Monitoring</u>	a) Regular removal of alien species	Applicant	Continuous, bi-annual monitoring
	b) Removal of any litter	Applicant	Continuous
	Monitoring of storm water entering the system [It is recommended that the storm water management systems be designed in such a way that the natural flow regime (velocity of the water) of the wetlands are not exceeded by 50% in the event of 1:10 year flood to prevent the possibility of erosion in the wetland].	Applicant	Annually
	d) Wetland health study should be done once a year to monitor environmental integrity of the wetland/riparian zone (i.e. check for signs of die-back and growth of alien invasive vegetation).	Applicant/ Specialist	Annually
7. <u>Waste management</u>	a) Domestic waste must be disposed of by an approved method	Applicant	Once-off, monitor continuously
	b) Sufficient litterbins should be placed at strategic points.	Applicant	Once-off, continuous
8. <u>Odours</u>	d) Materials must be processed quickly in order to minimise the odour generated from bacterial degradation.	Applicant	Daily
	b) Equipment and machinery must be kept clean from raw materials and residues.	Applicant	Daily
	c) Bins for holding raw materials and rendering products need to be covered and grinding, processing and conveying equipment must be completely enclosed.	Applicant	Daily
	d) Good housekeeping is essential to stop odours from developing.	Applicant	Daily
	e) The building housing the rendering works must be vented to the atmosphere via a discrete stack to allow retrofitting of odour control equipment.	Applicant / Contractor	Planning

	f) All conveyors and pipe runs for waste animal matter transfer operations must be capable of being dismantled for effective cleaning.	Applicant / Contractor	Planning
	g) Effective and reliable operation of burners and chemical scrubbers is essential.	Applicant	Daily
	h) All processed poultry that have become spoilt must be stored in enclosed containers and refrigerated until they are removed from the premises.	Applicant	Daily
9. <u>Crime & Safety</u>	a) Perimeter fencing, gates, etc. need to be checked and maintained.	Applicant	Weekly
10. <u>Health</u>	e) All staff must be clean especially hands, fingernails, arms, face and other exposed body parts	Applicant	Daily
	f) Clean light coloured clothes and headgear must be worn	Applicant	Daily
	g) Hands must be washed and disinfected every time work is resumed	Applicant	Daily
	h) No person suffering from any disease are allowed to handle or be near meat	Applicant	Daily
	i) Wash floor, walls and equipment with water when needed	Applicant	As required (daily)
	j) Clean cold stores on a weekly basis	Applicant	Weekly
	k) All staff must undergo a yearly medical exam	Applicant	Yearly
	l) Clear blocked drains	Applicant	Daily
	m) Remove feathers, feet and offal from working areas	Applicant	Daily
	n) See that all electrical component and connections are suitably protected from water	Applicant	Weekly
	o) Clean the interior with a high pressure hose to remove loose debris and foreign matter	Applicant	Daily

PART F: CONCLUSION

The implementation of the Draft EMP serves to minimise possible negative impacts during the construction and operational phases and assigns responsibility for environmental controls. However, this EMP serves only to inform the decision process and serves only as a minimum requirement. Should the project receive authorisation the Construction Environmental Management Programme should be reworked and expanded into a set of environmental specifications for inclusion into the tender documentation and form the basis of the contractual scope of work for all construction contracts.

Environmental management requires the ability to respond to changing requirements in a dynamic and multifaceted environment. Whilst the provision of management controls and mitigation measures are seen as important, the establishment of a system and provision of staff with the appropriate technical knowledge required to respond to changing requirements is of greater importance.