



AFGRI Poultry (Pty) Ltd

Composting Facility draft EMP

Locality: Sundra

Departmental Ref No:17/2/3 N-242

Date:27 November 2013

SHANGONI
Management Services (Pty) Ltd



DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP)

AFGRI Poultry (Pty) Ltd Composting Facility draft EMP

Locality: Sundra

Departmental Ref No: 17/2/3 N-242

27 NOVEMBER 2013

Unit C8
Block @ Nature
472 Botterklapper Street
Pretoria

Office: + 27 (0)12 807 7036
Fax: +27 (0)12 807 1014



PROJECT DETAILS

Mpumalanga Department of Economic Development, Environment and Tourism (MDEDET)

Reference No.:17/2/3 N-242

Project Title: AFGRI Poultry Composting Site

Project Number: AFG-DEL-12-11-16

Compiled by: Ms Lizette Crous

Date: 27 November 2013

Location: Pretoria

Technical Reviewer: Mr. Lourens de Villiers



Signature



TABLE OF CONTENTS

1. INTRODUCTION	5
2. ENVIRONMENTAL ASSESSMENT PRACTITIONER	7
3. SITE DOCUMENTATION	7
4. LEGISLATION	7
5. ENVIRONMENTAL MANAGEMENT PROGRAMME	10
6. ENVIRONMENTAL AWARENESS PLAN.....	30

LIST OF TABLES

Table 1: Listed activities in terms of Government Notice R. 544 of 18 June 2010	6
Table 3: EMP - Planning and Design Phase	10
Table 4: EMP- Pre-construction and Construction Phase	14
Table 5: EMP - Operational Phase	21
Table 6: EMP - Decommissioning Phase	28

LIST OF ABBREVIATIONS

ECO	-	Environmental Control Officer
EIA	-	Environmental Impact Assessment
EMP	-	Environmental Management Programme
GN	-	Government Notice
HCS	-	Hazardous Chemical Substances
NEMA	-	National Environmental Management Act, 1998
NEMWA	-	National Environmental Management: Waste Act, 2008
NWA	-	National Water Act, 1998
SHE	-	Safety, Health and Environment
SWMP	-	Storm Water Management Plan



1. INTRODUCTION

The Applicant

AFGRI Poultry (Pty) Ltd. forms part of AFGRI Operations Limited and is an integral supplier of chicken in South Africa. Day-old chicks are raised at AFGRI- and contractor- owner broiler farms and are supplied to AFGRI's abattoirs when fully grown. One of these abattoirs is the Daybreak abattoir in Sundra, Mpumalaga.

Background description

The AFGRI Poultry Daybreak abattoir is located on the remaining extent of portion 8 of the farm Modderfontein 236 IR. The abattoir currently slaughters approximately 700 000 chickens per week and an expansion of the abattoir to 1 500 000 chickens per week is planned for the future.

Wastewater generated by the slaughtering process has a high content of suspended fats. Currently the wastewater is partially treated and discharged into a pan (the Daybreak pan) on the property. To effectively treat the wastewater, a Waste Management License application is currently in process for the construction of a wastewater treatment works on the property. With the future construction of the wastewater treatment works, pollution of the Daybreak pan will cease. However, the proposed wastewater treatment works cannot treat the fats that are dissolved in the wastewater. To eliminate this problem, the dissolved fats are removed prior to treatment of the wastewater in a Dissolved Air Flocculation system. Currently, these fats (hazardous waste) need to be disposed of at a hazardous landfill site at great costs to AFGRI. To effectively treat the fats so that they are no longer seen as hazardous waste, a composting site is being proposed. An added benefit of composting is that other waste streams, including chicken litter from AFGRI's broiler farms, chicken manure, chicken mortalities, Dead-on-arrival chickens, abattoir floor waste and sludge, can also be treated into a valuable resource, namely compost.

Project description

AFGRI Poultry wishes to establish a composting site on a disturbed area (crop fields) of their property to compost their poultry waste. The following poultry wastes will be composted:

- Chicken manure;
- Chicken mortalities and Dead-On-Arrival chickens;
- Abattoir factory floor waste, sludge and fat; and
- Straw (broiler house litter).



1.1 Specific triggered listed activities

Table 1: Listed activities in terms of Government Notice R. 544 of 18 June 2010

Number and date of the relevant notice	Activity No	Description
Government Gazette No. 33306 of 18 June 2010; No. R 544 (Listing Notice 1)	11	The construction of: <ul style="list-style-type: none"> (i) canals; (ii) channels; (iii) bridges; (iv) dams; (v) weirs; (vi) bulk storm water outlet structures; (vii) marinas; (viii) jetties exceeding 50 square metres in size; (ix) slipways exceeding 50 square metres in size; (x) buildings exceeding 50 square metres in size; or (xi) infrastructure or structures covering 50 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.
Government Gazette No. 33306 of 18 June 2010; No. R 544 (Listing Notice 1)	23	The transformation of undeveloped, vacant or derelict land to – <ul style="list-style-type: none"> (i) residential, retail, commercial, recreational, industrial or institutional use, inside an urban area, and where the total area to be transformed is 5 hectares or more, but less than 20 hectares, or (ii) residential, retail, commercial, recreational, industrial or institutional use, outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares; - except where such transformation takes place – <ul style="list-style-type: none"> (i) for linear activities; or (ii) for purposes of agriculture or afforestation, in which case Activity 16 of Notice No. R. 545 applies.



2. ENVIRONMENTAL ASSESSMENT PRACTITIONER

Name of firm	Shangoni Management Services (Pty) Ltd.	
Postal address	PO Box 74726 Lynwood Ridge Pretoria 0040	
Telephone No.	012 807 7036	
Fax	012 807 1014/086 643 5360	
E-mail	lizette@shangoni.co.za	
Team of Environmental Assessment Practitioners on project		
Name	Qualifications & experience to conduct the EIA	Responsibility
Mr. H.L. de Villiers	<ul style="list-style-type: none"> Bsc. (Hons) (PU for CHE) MSc.(UP) More than 10 years' experience conducting Environmental Impact Assessments and Waste Management License Applications 	EIA Project Leader and Co-ordinator
Ms. Lizette Crous	<ul style="list-style-type: none"> Post Graduate Certificate Environmental Management (University of London) More than 2 years' experience conducting Environmental Impact Assessments and Waste Management License Applications 	EAP

3. SITE DOCUMENTATION

The following documentation must be available at the site office at all times:

- A copy of the Basic Assessment Report;
- A copy of this Environmental Management Programme (EMP); and
- A copy of the Environmental Authorisation.

4. LEGISLATION

4.1 LAWS OF GENERAL APPLICATION

- Constitution of the RSA, 1996 (Act No 108 of 1996);
- National Environmental Management Act, 1998 (Act No 107 of 1998);
- Environment Conservation Act, 1989 (Act No 73 of 1989);
- Promotion of Access to Information Act, 2000 (Act No 2 of 2000);



- Protected Disclosures Act, 2000 (Act No 26 of 2000).

4.2 AIR QUALITY AND NOISE

- Atmospheric Pollution Prevention Act, 1965 (Act No 45 of 1965);
- National Building Regulations and Building Standards Act, 1977 (Act No 103 of 1977);
- Environment Conservation Act, 1989 (Act No 73 of 1989) – Noise Control Regulations in terms of Section 25 of the Environment Conservation Act, 1989;
- National Environmental Management Act, 1998 (Act No 107 of 1998).

4.3 WATER MANAGEMENT

- National Water Act, 1998 (Act No 36 of 1998).

4.4 HAZARDOUS CHEMICALS AND SUBSTANCES

- Hazardous Substances Act, 1973 (Act no. 15 of 1973);
- Occupational Health and Safety Act, 1993 (Act No 85 of 1983) – GN 1179 of 25 August 1995 – Regulations for Hazardous Chemical Substances (HCS).

4.5 WASTE MANAGEMENT

- National Environmental Management: Waste Act (NEMWA) No 59, of 2008;
- Environment Conservation Act, 1989 (Act No 73 of 1989);
- National Road Traffic Act, 1996 (Act No 93 of 1996) – GN R225 of 17 March 2000 – National Road Traffic Regulations;
- Hazardous Substances Act, 1973 (Act No 15 of 1973);
- Occupational Health and Safety Act, 1993 (Act No 85 of 1993) – GN 1179 of 25 August 1995 – Hazardous Chemical Substance Regulations.

4.6 PLANNING OF NEW ACTIVITIES

- National Environmental Management Act, 1998 (Act No 107 of 1998).
- GN R.543, GN R.544, GN R.545 and GN R.546, dated June 2010.

4.7 BIODIVERSITY

- National Environmental Management Biodiversity Act, 2004 (Act No 10 of 2004);
- Conservation of Agricultural Resources Act, 1983 (Act No 43 of 1983);
- National Veld and Forest Fire Act, 1998 (Act No 101 of 1998)



4.8 LAND AND SOIL MANAGEMENT

- National Environmental Management Act, 1998 (Act No 107 of 1998);
- Environment Conservation Act, 1989 (Act No 73 of 1989).

4.9 HERITAGE RESOURCES

- National Heritage Resources Act No 25 of 1999 (Act No 25 of 1999).

4.10 PROTECTED AREAS

- National Environmental Management: Protected Areas Act, 2003 (Act No 57 of 2003).

During the course of the project phases, the applicant and its contractors must comply with all other relevant legislation (including the bylaws of the local municipality).



5. ENVIRONMENTAL MANAGEMENT PROGRAMME

Refer to the tables below for the EMP. Responsibility is assigned to the relevant parties, keeping in mind the AFGRI Poultry (Pty) Ltd. are ultimately still responsible for ensuring implementation of the EMP. The EMP must be updated should any significant changes occur to the operations with regards to the composting project.

The mitigation measures are set out in the tables below (per project phase), for the composting facility project.

5.1 PLANNING AND DESIGN PHASE

Table 2: EMP - Planning and Design Phase

Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party
Investigate alternative activities, processes, inputs, locations and designs.	Poor research, wrongful- and unconservative data resulting in affected storm water entering the environment.	Surface Water pollution in the form of: <ul style="list-style-type: none"> • Eutrophication; • Salination; and • Pathogenic and bacterial contamination of the adjacent surface water body (Daybreak Pan). 	To prevent infrastructure failure and ineffective waste treatment (composting), by performing proper investigation of the potential activity, process, input, location and design alternatives of the composting facility.	<ul style="list-style-type: none"> • The following must be incorporated into the compost facility design: <ul style="list-style-type: none"> ➢ Diverting storm water runoff from passing through composting/composted stockpiles and windrows. ➢ Containing affected storm water runoff by means of a berm and pollution control dams. ➢ Choosing the correct method of composting for the material to be treated. • The composting facility's location should be based on the process design and the site conditions. • The facility should be located at an elevation higher than the 100-year flood level or otherwise it should be sufficiently protected against flood damage. 	AFGRI Poultry should ensure that the facility design conforms to the required management/ mitigation measures.	Complete prior to construction phase	<ul style="list-style-type: none"> • Design Engineer • Environmental consultant
Investigate alternative activities, processes, inputs, locations and designs.	Poor research, wrongful- and unconservative data resulting in affected storm water entering the environment.	Depletion of a natural resource as a result of soil, surface water and groundwater contamination.	To prevent the contamination of the surrounding environment by affected storm water release	<ul style="list-style-type: none"> • The composting facility design should consider the following: <ul style="list-style-type: none"> ➢ Compacting or reducing the working area to reduce the permeability of the soil in order to prevent/reduce the infiltration of contaminants (leachate) into the groundwater. ➢ Sloping and leveling the working area to promote free draining of affected runoff. ➢ Designing the layout and placing of windrows and stockpiles to allow free draining of affected runoff. ➢ Capacity design for water diversion as well as pollution control dam capacity. ➢ Pollution control dams must be lined with a 1.5mm HDPE liner. 	AFGRI Poultry should ensure that the facility design conforms to the required management/ mitigation measures.	Complete prior to construction phase	<ul style="list-style-type: none"> • Design Engineer • Environmental consultant
Planning the construction and development of	Impeding or diverting flow or altering the bed, banks, course or characteristics	Interference with natural characteristics of the Daybreak Pan. Secondly, potentially impacting on the	To prevent negative impacts to the Daybreak Pan.	<ul style="list-style-type: none"> • Site clearing is to be limited to only the area necessary for carrying out the specified work. • Before any construction takes place the proposed construction area will be pegged out. All construction activities will be limited to within this area in order to reduce the footprint of the proposed activity and avoid impact on 	AFGRI Poultry should ensure submission of a site plan to the ECO.	Complete prior to construction phase	<ul style="list-style-type: none"> • Environmental Consultant • ECO

Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party
<p>associated composting infrastructure within 500m from the boundary of a wetland.</p>	<p>of a watercourse (Daybreak Pan).</p>	<p>surrounding water use, land use and health and safety of the public.</p>		<p>adjacent natural vegetation and animal life.</p> <ul style="list-style-type: none"> • Construction areas should be fenced off or barricaded prior to and during the construction phase. • The contractor is to draw up a site plan for submission to the ECO and the facility manager indicating the locations of stockpiles, temporary storm water control measures and construction infrastructure. • The site boundary is to be clearly demarcated and screened from the commencement of works. The erection of a boundary fence or wall is preferable. • Application for a Water Use License in terms of Section (c) and (i) of the National Water Act, 1998 (Act 36 of 1998). <p>The following conditions were abstracted from the Department of Water Affairs and Forestry’s General Authorisations (GN398), for impeding or diverting flow or altering the bed, banks, course or characteristics of a water course in terms of Section 39 of the NWA, 1998 (Act 36 of 1998), , March, 2004.</p> <p>In stream and riparian habitat</p> <ul style="list-style-type: none"> • The water use must not result in a potential, measurable or cumulative detrimental- <ul style="list-style-type: none"> ➢ Change in the stability of the watercourse; ➢ Change in the physical structure of a watercourse; ➢ Scouring, erosion or sedimentation of a watercourse; or ➢ Decline in the diversity of communities and composition of the natural, endemic vegetation. <p>Hydraulics and Hydrology</p> <ul style="list-style-type: none"> • The water use must not result in a potential, measurable or cumulative detrimental change in the quantity, velocity, pattern, timing, water level and assurance of flow in a watercourse. <p>Water quality</p> <ul style="list-style-type: none"> • The water use must not result in a potential, measurable or simulative detrimental change in the water quality characteristics of the watercourse. <p>Biota</p>	<p>AFGRI Poultry should ensure that the ECO approved site plan is implemented.</p>		



Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party
				<ul style="list-style-type: none"> The water use must not result in a potential, measurable or cumulative detrimental change on the- <ul style="list-style-type: none"> Breeding, feeding and movement patterns of aquatic biota, including migratory species; Level of composition and diversity of biotopes and communities of animals and micro organisms; or Condition of the aquatic biota 			
Handling, storage and disposal of general/ domestic and hazardous waste.	Poor waste management.	Soil, surface- and groundwater pollution. Nuisance caused by odours and unsightly appearance of waste onsite.	To prevent soil, surface- and groundwater pollution and the nuisance as a result of poor waste management.	<ul style="list-style-type: none"> Develop a Waste Management Plan (WMP). Develop an Odour Management Plan. The WMP should consider the type of waste, description, source, storage, disposal method, disposal facility and responsible person. Waste volume and safe disposal monitoring should also be included in the Operational, Maintenance and Monitoring Plan (OMMP). 	AFGRI Poultry should ensure the development of a WMP.	Complete prior to operational phase	<ul style="list-style-type: none"> Facility Manager Environmental Consultant
Storm water.	Poor design of storm water control measures.	Soil and surface water pollution.	To ensure a proper storm water control system is put in place.	<ul style="list-style-type: none"> Compile a Storm Water Management Plan. Design effective storm water control measures. 	AFGRI Poultry should ensure the development of effective storm water control measures.	Complete prior to construction and operational phase	<ul style="list-style-type: none"> Contractor Facility Manager Environmental Consultant
Infrastruc- ture and environ- mental maintenance and monitoring.	Poor and/or no maintenance and monitoring.	Environmental degradation	To continually investigate the condition of the composting facility, storm water control measures, biosecurity measures as well as the surrounding environment, to determine the performance of the composting facility and its impact on the surrounding environment.	<ul style="list-style-type: none"> Prepare an Operational, Maintenance and Monitoring Plan (OMMP) (Refer to Section 6) Monitoring should include: <ul style="list-style-type: none"> Water level of the Daybreak Pan. All water uses and discharges should be measured on an ongoing basis. Quality and quantity of surrounding surface and groundwater. Waste volume and safe disposal monitoring. Reporting monitoring results. Maintenance should include: <ul style="list-style-type: none"> Structural integrity of pollution control dams, berms and embankments, Structural integrity and condition of the storm water control measures. Structural integrity and condition of the natural drainage line. Incident reporting and corrective action. 	AFGRI Poultry should ensure the development of a OMMP	Complete prior to construction and operational phase	<ul style="list-style-type: none"> Contractor Facility Manager Environmental Consultant



Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party
General activities during the construction and operational phase.	Lack of environmental knowledge among employees.	Harm to the environment due to employees being unaware of how their activities may impact the environment.	To prevent harm to the environment through the actions of uneducated employees.	<ul style="list-style-type: none"> The person(s) responsible for operating the composting facility must be competent and aptly trained to run such a facility. Prepare and implement a training/awareness plan. Workers must be properly trained in all aspects relating to the operation of the facility and must be familiar with the content of the environmental authorization and environmental management programme. Follow-up environmental training/awareness may be required as new crews commence work. The contractor is to maintain accurate records of any training undertaken. Training is to cover all aspects of the Environmental Management Programme (EMP) and procedures to be followed. 	AFGRI Poultry should ensure the implementation of a proper Environmental Training/Awareness Plan	Complete prior to construction and operational phase	<ul style="list-style-type: none"> Contractor Facility Manager Environmental Consultant
Interested and affected party concern.	Complaints.	Negative public perception.	To provide a communications pathway wherein parties can voice their grievances. In this way latent impacts can be identified and dealt with.	<ul style="list-style-type: none"> In order to provide feedback with regards to complaints received, a complaints register must be kept at the site. The complaints register will record the following: Date when complaint was received, Name of person who reported the complaint and when and how concern was addressed. 	AFGRI Poultry should ensure the development of a complaints register.	Complete prior to construction and operational phase	<ul style="list-style-type: none"> Contractor Facility Manager Environmental Consultant
Emergency situation, e.g. chemical spillages, fires etc.	Poor emergency preparedness and response.	Endangering employees, damage to infrastructure and environmental degradation.	To ensure proper emergency preparedness and response.	<ul style="list-style-type: none"> The facility manager is to obtain, regularly update, and keep on file, all relevant emergency contact details (such as the police, fire-fighting authorities, ambulance etc.). The facility manager is to provide the contractor with all relevant emergency contact details. The contractor shall include the location of all temporary fire-fighting equipment, designated hot work/smoking/cooking areas and safety signage on the site plan to be submitted to the ECO and the facility manager prior to construction. The contractor shall ensure that all employees are provided with and use their respective Personal Protective Equipment (PPE) during the construction phase. The facility manager shall ensure that all employees are provided with and use their respective Personal Protective Equipment (PPE) during the operational phase. The facility manager shall include the position of all fire-fighting/chemical spill equipment, waste storage facilities, chemical storage facilities and safety signage (such as “No smoking”, “No naked lights” and “Danger”) in 	AFGRI Poultry should ensure the development of an emergency preparedness and response plan.	Complete prior to construction and operational phase	<ul style="list-style-type: none"> Contractor Facility Manager Environmental Consultant



Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party
				<p>the Operational Maintenance and Monitoring Plan (OMMP) and submit it to the ECO for approval prior to operation of the composting facility.</p> <ul style="list-style-type: none"> The facility manager shall acquire sufficient and necessary equipment to deal with emergency chemical spills (such as spill kits, drip trays, etc.) and fires (such as fire extinguishers) prior to operation of the facility 			

5.2 PRE-CONSTRUCTION AND CONSTRUCTION PHASE

Table 3: EMP- Pre-construction and Construction Phase

Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party
Construction of the Composting Facility.	Lack of environmental knowledge among employees.	Harm to the environment due to employees being unaware of how their activities may impact the environment or due to unauthorised access to the site.	To prevent harm to the environment through the actions of uneducated employees.	<ul style="list-style-type: none"> All employees are required to attend onsite Environmental Awareness/Training prior to commencing work on site. Follow-up Environmental Awareness/Training may be required from time to time as new employees commence work or for specific activities that may potentially impact the environment. The facility manager is to maintain accurate records of any training undertaken. The ECO shall monitor the facility managers' compliance with the requirement to provide sufficient environmental awareness training to all site staff. Training is to cover all aspects of the EMP and procedures to be followed. All pollution control dams must be lined with 	Internal auditor to inspect records of training undertaken.	During construction phase, up until commissioning of the facility.	Facility Manager
Construction of the Composting Facility.	Dust generation.	Degradation of ambient air quality.	To minimise the impact of dust generated by the increased traffic frequency and excavation activities.	<ul style="list-style-type: none"> Dust suppression must occur through watering down dusty roads. Speed bumps or traffic speed signs need to be erected to reduce speeding onsite that could result in the generation of dust. Regular maintenance of vehicles to address wear of tires and breaks. Optimal engine combustion will allow for 'cleaner' exhaust emissions. Open areas should be ripped, if the soil is compacted, fertilised to ensure and re-vegetated as soon as possible using suitable grass species. 	Internal auditor to inspect the site, maintenance schedule and conformance to EMP.	During construction phase, up until commissioning of the facility.	Facility Manager
Vehicle frequency and general construction activities.	Generation of noise.	Disturbance and nuisance to neighbours.	To maintain a dB reading of less than 50dB	<ul style="list-style-type: none"> Regular maintenance of vehicles, back-up generators, pumps and other equipment. All equipment and machinery should be fitted with adequate silencers. 	Internal auditor to regularly check the complaints register	During construction phase, up until	Facility Manager

Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party
			at the site boundary.	<ul style="list-style-type: none"> Enclose machines and equipment with elevated noise emissions (in excess of 85dB) in noise reduction housing, where possible. No sound amplification equipment such as sirens, loud hailers or hooters are to be used on site except in emergencies and no amplified music is permitted on site. If work is to be undertaken outside of normal work hours permission must be obtained from the ECO and the facility manager. No noisy work is to be conducted over the weekends or on public holidays. 	and determine whether noisy operational activities comply to the mitigation measures in the EMP.	commissioning of the facility.	
Use of night-time lighting.	Artificial light during night-time hours.	Light pollution and nuisance.	To prevent the facility becoming a nuisance to adjacent landowners as a result of artificial light during the night.	<ul style="list-style-type: none"> Night-time lighting must be kept to a minimum and must be switched off when not required. Night-time lighting must be directed away from the Modderfontein road, to prevent disturbance of passing vehicles and residences. A complaints register must be kept on site. The complaints register must record the following: date when complaint was received, name of person who reported the complaint and when and how the concern was addressed. 	Internal auditor to regularly check the complaints register and determine whether noisy operational activities comply to the mitigation measures in the EMP.	During construction phase, up until commissioning of the facility.	Facility Manager
Handling, storage and disposal of general/domestic and hazardous waste.	Poor waste management.	Soil, surface- and groundwater pollution. Nuisance caused by odours and unsightly appearance of waste material/compost material onsite.	To prevent soil, surface- and groundwater pollution and the nuisance as a result of poor waste management.	<ul style="list-style-type: none"> Develop a waste management plan. Develop a waste manifest. Conduct waste classification of all waste used in the composting process. The waste management plan and manifest should consider the type of waste, description, source, storage, disposal method, disposal facility and responsible person. The implementation of the waste management plan should ensure: <ul style="list-style-type: none"> Installation of sufficient waste bins and skips/bulk containers where necessary. All containers (bins and skips/bulk containers) shall be kept in a clean and hygienic manner. Containers (bins and skips/bulk containers) utilised for the disposal of general and hazardous waste must be demarcated and suitably designed (e.g. prevent water ingress and contain spillages that may arise). General waste shall be stored in a manner that prevents the harbouring of pests. General waste materials should always be stored or disposed of 	Internal auditor must inspect the site, WMP and maintenance schedule to determine whether the handling, storage and disposal of general/domestic and hazardous waste complies with the EMP mitigation measures.	During construction phase, up until commissioning of the facility.	Facility Manager



Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party
				separately from hazardous waste material (e.g. oil, diesel). ➤ General and hazardous wastes may only be disposed of at authorised facilities, and records of disposal kept. ➤ Safe disposal certificates should be requested from general and hazardous landfill sites with every waste dumping. ➤ These safe disposal certificates should be kept on file to illustrate compliance with the cradle to grave principle. ➤ The ECO shall monitor the compliance with the cradle to grave principle. • No incineration of any kind of waste will be permitted onsite.			
Rain event.	'Clean' rainwater running into 'dirty' areas.	Soil and surface water pollution.	To prevent the contamination of 'clean' rain water by 'dirty' areas through the control of stormwater runoff.	<ul style="list-style-type: none"> Clean storm water runoff from the surrounding environment must be channeled away from 'dirty' areas. The 'dirty' areas include the composting windrow area, material stockpile area, stockpiled compost (finished product), as well as chemicals storage areas and all other waste storage areas. Storm water measures should be inspected on a regular basis in order to ensure that the structures are functional and are not causing soil erosion. Where necessary, place culverts underneath road foundations. 	Internal auditor must inspect the site and maintenance schedule to determine whether storm water control complies with the EMP mitigation measures.	During construction phase, up until commissioning of the facility.	Facility Manager
Storage and handling of chemical substances.	Poor management of chemicals and chemical spills.	Soil, surface water and groundwater pollution.	To prevent and minimise soil and water pollution as a result of poor management and accidental chemical spills.	<ul style="list-style-type: none"> Identify all chemical substances. Obtain the Material Safety Data Sheet of each of these chemical substances. Ensure that the Material Safety Data Sheets have sufficient information to enable the user to take the necessary measures to protect his/her health and safety and that of the environment. Material Safety Data Sheets for all hazardous chemical substances must be readily available on site. Develop a dangerous goods management plan based on the Material Safety Data Sheets of all identified chemical substances and the 1995 Hazardous Chemical Substances Regulations in terms of the Occupational Health and Safety Act, 1993 (Act no. 85 of 1993). Implement a dangerous goods management plan. Keep a stock inventory register of all chemicals in the store. Powders must be stored above liquids. Proper storage of chemicals in a lockable, well ventilated building. 	Internal auditor must inspect site and dangerous goods management plan to determine whether the storage and handling of chemical substances complies with the EMP mitigation measures.	During construction phase, up until commissioning of the facility.	Facility Manager



Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party
				<ul style="list-style-type: none"> • Ensure adequate access control for the storage area. • Storage areas for hazardous chemicals are to comply with standard fire safety regulations. • Safety signage including “No Smoking”, “No Naked Lights” and “Danger”, and product identification signs, are to be clearly displayed in areas housing chemicals. • Appropriate equipment to deal with emergency spill incidents is to be readily available on site. This includes fire extinguishers, spill kits for hydrocarbon spills, drip trays for equipment and/or machinery leaks, drums or containers for contaminated water. • Chemicals are to be properly labeled and handled in a safety conscious manner. • All personnel handling hazardous chemicals and hazardous materials are to be issued with the appropriate Personal Protective Equipment (PPE). • Ensure that diesel/ fuel tanks are in a bunded area with a holding capacity of 110% of the total storage volume. • The removal of only the daily-required amount of chemicals to be used from the shed. • If refueling on site or from drums, the ground must be protected and proper dispensing equipment is to be used i.e. hand pumps and funnels. Drums may not be tipped to dispense fuel. • Use of drip trays during filling of machinery or equipment. Drip trays should be emptied into secondary containers on a regular basis. • Ensure that any spilled chemical cannot exit the designated storage area by constructing a berm / bump at the exit, or store chemicals in a spill tray. • Clean all spillage of fuels, lubricants and other petroleum based products immediately. • The contaminated material must be disposed of in accordance with the waste management procedure. • No hazardous chemical must be discarded in the sewage or storm water system. • Train staff on the use of chemicals in accordance with the risks as described in the Material Safety Data Sheets. • Soil contaminated with hazardous chemical substances shall be treated as hazardous waste and removed from site. 			



Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party
Vehicle and equipment maintenance and fuelling.	Leaking and/or spilling of fuels, greases and oils.	Hydrocarbon pollution of soils, surface- and groundwater.	To prevent hydrocarbon pollution of soils, surface- and groundwater.	<ul style="list-style-type: none"> • Inspection and maintenance of equipment, generators and vehicles shall take place on a regular basis. • Security shall inspect vehicles on entering the facility to ensure vehicles are in sound condition to reduce the risk of oil or diesel spillages. • Equipment, generators and vehicles are to be repaired immediately upon developing leaks. • Generators must be stored on a concrete floor in a bunded area. • Drip trays shall be supplied for all repair work undertaken on machinery on site. • Drip trays are to be utilised during daily greasing and re-fuelling of machinery and to contain incidental spills and pollutants. • Drip trays are to be inspected daily for leaks and effectiveness and emptied when necessary. This is to be closely monitored during rain events to prevent overflow. • Appropriate equipment to deal with emergency spill incidents is to be readily available on site. This includes fire extinguishers, spill kits for hydrocarbon spills, drip trays for equipment and/or machinery leaks, drums or containers for contaminated water. • Soil contaminated with hazardous substances, fuel or oil shall be treated as hazardous waste and removed from site. • If refueling on site or from drums, the ground must be protected and proper dispensing equipment is to be used i.e. hand pumps and funnels. Drums may not be tipped to dispense fuel. • All liquid fuels (petrol and diesel) are to be stored in tanks or containers with lids. 	Internal auditor must inspect site and maintenance schedule to determine whether vehicle and equipment maintenance and re-fuelling complies with the EMP mitigation measures.	During construction phase, up until commissioning of the facility.	Facility Manager
Installation and use of ablution facilities.	Unsanitary conditions on site.	Potential surface- and/or groundwater- contamination.	Prevent soil, surface- and groundwater pollution from unsanitary conditions onsite.	<ul style="list-style-type: none"> • Sufficient ablution facilities shall be provided – minimum of 1 toilet per 15 workers. • The location of toilets is to be approved by the ECO prior to site establishment, but shall be located within 100m of any work point. • Ablution facilities shall be inspected and maintained to prevent or minimise blockage and leakages. • Ablution facilities are to be serviced weekly or more frequently if required. • Toilets should have properly closing doors and be supplied with toilet paper. • Awareness of the importance of proper hygiene should be created among 	Internal auditor to inspect site and maintenance schedule to determine whether the installation and use of ablution facilities complies with the EMP mitigation	During construction phase, up until commissioning of the facility.	Facility Manager



Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party
				employees. • Ablating anywhere other than in the toilets shall not be allowed.	measures.		
Usage of resources such as electricity and water.	Inefficient and redundant use of a valuable resource.	Wastage/depletion of valuable resources.	To prevent the inefficient and redundant use of valuable resources.	<p>General</p> <ul style="list-style-type: none"> • Ensure that all employees have been informed on the importance of natural resources (Proper environmental training and awareness). • Regular site inspection by supervisors. • Inspect operations regularly to determine areas of improvement with regards to resource consumption. • Regular maintenance and inspection of equipment, such as hose pipes, to prevent leaks. • Monitoring of resource consumption. • Identify areas where resource consumption can be minimised. • Set targets to try minimise resource consumption. • Identify technologies and practices which may reduce resource consumption. • Implementation of technologies and practices which can reduce resource consumption. <p>Water</p> <ul style="list-style-type: none"> • Groundwater abstracted from boreholes should take place at a sustainable rate. • Regular inspection and maintenance of all boreholes, JoJo tanks, toilets, water pipes and taps. • Leaking JoJo tanks, taps, toilets and pipes are to be repaired immediately. • Running water taps and pipes may not be left unattended. • Each time you flush the toilets approximately 20 litres of water is used, therefore use the toilets accordingly. • All pipe/hose and tap connections are to be fitted with correct and appropriate plumbing fittings. <p>Electricity</p> <ul style="list-style-type: none"> • Save electricity by turning off lights and computers when leaving the office. • Halogen light bulbs convert approximately 80% of the energy used into heat rather than light. Replace spent light bulbs with energy saving CFLs (compact fluorescent light) or newer and more efficient LEDs (light emitting diode). 	Internal auditor site-, monitoring report- and maintenance schedule inspection to determine whether the usage of resources such as electricity and water comply with the EMP mitigation measures.	During construction phase, up until commissioning of the facility.	Facility Manager



Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party
Growth of vegetation.	Infestation of alien invasive vegetation.	Loss of indigenous habitat and excessive water usage.	To control alien invasive plant species	<ul style="list-style-type: none"> • Ensure all alien invasive plants are identified on the site. • Ensure an eradication plan for the removal of the alien invasive vegetation is developed. • Ensure all alien invasive vegetation is removed from the site in accordance to the eradication plan. • Areas where alien vegetation was removed should be re-seeded with indigenous grasses. • Alien invasive vegetation must be eradicated and controlled by manual removal, chemical application and/or biological control. The regulations in terms of the Conservation of Agricultural Resource Act, 1983 apply. • Perform a Habitat assessment study annually for three years. 	Internal auditor site-, monitoring report-, habitat assessment, and maintenance schedule inspection to determine whether alien vegetation is removed as per the mitigation measures in the EMP.	During construction phase, up until commissioning of the facility.	Facility Manager
Commissioning of the Composting Facility.	Generation of odours at the composting facility.	Potential social impact (nuisance) caused by odours generated.	To minimise the impact of odours created at the composting facility.	<ul style="list-style-type: none"> • Commercial microbial and enzyme products must be added during the commissioning phase of the compost heaps/windrows in order to promote natural decomposition of the organic matter and prevent the generation of odours. • All chemicals and detergents used at the abattoir must be compatible with the bacteria used in the compost process. • Should system failure occur, a suitable starter culture or enzyme must be used to re-establish the optimal composting equilibriums. 	Internal auditor site-, monitoring report-, complaints register, and maintenance schedule inspection to determine whether the composting process occurs as per the mitigation measures in the EMP.	During construction phase, up until commissioning of the facility.	Facility Manager



5.3 OPERATIONAL PHASE

Table 4: EMP - Operational Phase

Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party														
Operational activities at the Composting Facility.	Lack of environmental knowledge among employees.	Harm to the environment due to employees being unaware of how their activities may impact the environment or due to unauthorised access to the site.	To prevent harm to the environment through the actions of uneducated employees.	<ul style="list-style-type: none"> All employees are required to attend onsite Environmental Awareness/Training prior to commencing work on site. Follow-up Environmental Awareness/Training may be required from time to time as new employees commence work or for specific activities that may potentially impact the environment. The facility manager is to maintain accurate records of any training undertaken. Training is to cover all aspects of the EMP and procedures to be followed. 	Internal auditor to inspect records of training undertaken.	Life of operation	Facility Manager														
Operation of the Composting Facility.	Poor facility operation, inspection, monitoring and maintenance.	Poor operation, inspection, monitoring and maintenance may lead to process failure, compromising the production rate and quality of the compost being produced. This may lead to the buildup of organic matter (e.g. abattoir waste) and even the disposal of poor quality waste instead of being utilised as a fertiliser.	To ensure the compost facility operates optimally at a rate that will effectively treat/re-use the abattoir waste (fat sludge) produced at the abattoir on a continual basis.	<ul style="list-style-type: none"> All pollution control dams must be regularly inspected for signs of sludge build up and HDPE liner integrity. Water diversions should be regularly inspected for integrity to address erosion concerns that might lead to berm failure during intense rain events. Berms should be vegetated to prevent erosion. Compile a standard operating procedure for the composting production process based on the following key performance indicators: <table border="1" data-bbox="1210 1129 2101 1444"> <thead> <tr> <th>Factor</th> <th>Optimal Production Range</th> </tr> </thead> <tbody> <tr> <td>Temperature</td> <td>54 – 60 °C</td> </tr> <tr> <td>Carbon to Nitrogen ratio (C:N)</td> <td>25:1 – 30:1</td> </tr> <tr> <td>Aeration, percent oxygen</td> <td>> 5%</td> </tr> <tr> <td>Moisture Content</td> <td>50 – 60%</td> </tr> <tr> <td>Porosity</td> <td>30 - 36</td> </tr> <tr> <td>pH</td> <td>6.5 – 7.5</td> </tr> </tbody> </table>	Factor	Optimal Production Range	Temperature	54 – 60 °C	Carbon to Nitrogen ratio (C:N)	25:1 – 30:1	Aeration, percent oxygen	> 5%	Moisture Content	50 – 60%	Porosity	30 - 36	pH	6.5 – 7.5	Day to day monitoring of optimal production parameters as per table. Internal auditor to inspect the site, maintenance schedule, waste management plan and waste disposal certificates to determine whether the operation of the composting facility complies with the EMP mitigation measures.	Life of operation	Facility Manager
Factor	Optimal Production Range																				
Temperature	54 – 60 °C																				
Carbon to Nitrogen ratio (C:N)	25:1 – 30:1																				
Aeration, percent oxygen	> 5%																				
Moisture Content	50 – 60%																				
Porosity	30 - 36																				
pH	6.5 – 7.5																				
Composting process and dispatch.	Dust generation.	Degradation of ambient air quality.	To minimise the impact of dust generated by the turning of windrows and dumping and collection	<ul style="list-style-type: none"> Dust suppression must occur through watering down dusty working areas. Work should cease during windy periods. 	Internal auditor site and maintenance schedules inspection to determine whether the dust suppression, speed	Life of operation	Facility Manager														



Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party
			of treated material.		bumps, speed signage and maintenance of vehicles complies with the EMP mitigation measures.		
Vehicle frequency and general operational activities.	Generation of noise.	Disturbance and nuisance to neighbours.	To maintain a dB reading of less than 50dB at the site boundary.	<ul style="list-style-type: none"> Regular maintenance of vehicles, back-up generators, pumps and other equipment. All equipment and machinery should be fitted with adequate silencers. Enclose machines and equipment with elevated noise emissions (in excess of 85dB) in noise reduction housing, where possible. No sound amplification equipment such as sirens, loud hailers or hooters are to be used on site except in emergencies and no amplified music is permitted on site. If work is to be undertaken outside of normal work hours permission must be obtained from the ECO and the facility manager. No noisy work is to be conducted over the weekends or on public holidays. 	Internal auditor to regularly check the complaints register and to determine whether noisy operational activities comply with the mitigation measures in the EMP.	Life of operation	Facility Manager
Use of night-time lighting.	Artificial light during night-time hours.	Light pollution and nuisance.	To prevent the facility becoming a nuisance to adjacent landowners as a result of artificial light during the night.	<ul style="list-style-type: none"> Night-time lighting must be kept to a minimum and switched off when not required. Night-time lighting must be directed away from the Modderfontein road, to prevent disturbance of passing vehicles and residences. A complaints register must be kept on site. The complaints register must record the following: date when complaint was received, name of person who reported the complaint and when and how the concern was addressed. 	Internal auditor to check the complaints register to determine whether operational activities comply to the mitigation measures in the EMP.	Life of operation	Facility Manager
Handling, storage and disposal of general/domestic and hazardous waste.	Poor waste management.	Soil, surface- and groundwater pollution. Nuisance caused by odours and unsightly appearance of waste onsite.	To prevent soil, surface- and groundwater pollution and the nuisance as a result of poor waste	<ul style="list-style-type: none"> Conduct waste classification of all waste used in the composting process. Continual use of the waste manifest. Implementation of the waste management plan. The implementation of the waste management plan should ensure: <ul style="list-style-type: none"> ➢ Installation of sufficient waste bins and skips/bulk containers, where necessary. ➢ All containers (bins and skips/bulk containers) shall be kept in a clean and 	Internal auditor to inspect the site, WMP and maintenance schedule to determine whether the handling, storage and	Life of operation	Facility Manager



Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party
			management.	<p>hygienic manner.</p> <ul style="list-style-type: none"> ➤ Containers (bins and skips/bulk containers) utilised for the disposal of general and hazardous waste must be demarcated and suitably designed (e.g. to prevent water ingress and contain spillages that may arise). ➤ General waste shall be stored in a manner that prevents the harbouring of pests. ➤ General waste materials should always be stored or disposed of separately from hazardous waste material (e.g. oil, diesel). ➤ General and hazardous wastes may only be disposed of at authorised facilities and records of disposal kept. ➤ Safe disposal certificates should be requested from general and hazardous landfill sites with every waste dumping. ➤ These safe disposal certificates should be kept on file to illustrate compliance with the cradle to grave principle. <ul style="list-style-type: none"> • No incineration of any kind of waste will be permitted onsite. 	disposal of general/domestic and hazardous waste complies with the mitigation measures in the EMP.		
Rain event.	'Clean' rainwater running into 'dirty' areas.	Soil and surface water pollution.	To prevent the contamination of 'clean' rain water by 'dirty' areas through control of storm water runoff.	<ul style="list-style-type: none"> • Clean storm water runoff from the surrounding environment must be channeled away from 'dirty' areas. The 'dirty' areas include the composting windrow area, material stockpile area, as stockpiled compost (finished product), as well as chemicals storage areas and all other waste storage areas. • Storm water measures should be inspected on a regular basis in order to ensure that the structures are functional and not causing soil erosion. • Where necessary, place culverts underneath road foundations. 	Internal auditor to inspect the site and maintenance schedule to determine whether storm water control complies with the EMP mitigation measures.	Life of operation	Facility Manager
Storage and handling of chemical substances.	Poor management and spills of chemical substances.	Soil-, surface water- and groundwater pollution.	To prevent and minimise soil and water pollution as a result of poor management and accidental spills of chemical substances.	<ul style="list-style-type: none"> • Identify all chemical substances. • Obtain the Material Safety Data Sheet of each of these chemical substances. • Ensure that the Material Safety Data Sheets have sufficient information to enable the user to take the necessary measures to protect his/her health and safety and that of the environment. • Material Safety Data Sheets for all hazardous chemical substances must be readily available on site. • Develop a dangerous goods management plan based on the Material Safety Data Sheets of all identified chemical substances and the 1995 Hazardous Chemical Substances Regulations in terms of the Occupational Health and Safety Act, 1993 (Act no. 85 of 1993). 	Internal auditor to inspect the site and dangerous goods management plan to determine whether the storage and handling of chemical substances complies with the mitigation	Life of operation	Facility Manager



Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party
				<ul style="list-style-type: none"> • Implement a dangerous goods management plan. • Keep a stock inventory register of all chemicals in the store. • Powders must be stored above liquids. • Proper storage of chemicals in a lockable, well ventilated building. • Ensure adequate access control for the storage area. • Storage areas for hazardous chemicals are to comply with standard fire safety regulations. • Safety signage including “No Smoking”, “No Naked Lights” and “Danger”, and product identification signs, are to be clearly displayed in areas housing chemicals. • Appropriate equipment to deal with emergency spill incidents is to be readily available on site. This includes fire extinguishers, spill kits for hydrocarbon spills, drip trays for equipment and/or machinery leaks, drums or containers for contaminated water. • Chemicals are to be properly labelled and handled in a safety conscious manner. • All personnel handling hazardous chemicals and hazardous materials are to be issued with the appropriate Personal Protective Equipment (PPE). • Ensure that diesel/fuel tanks are in a bunded area with a holding capacity of 110% of the total storage volume. • The removal of only the daily-required amount of chemicals to be used from the shed. • If refueling on site or from drums, the ground must be protected and proper dispensing equipment is to be used i.e. hand pumps and funnels. Drums may not be tipped to dispense fuel. • Use of drip trays during filling of machinery or equipment. Drip trays should be emptied into secondary containers on a regular basis. • Ensure that any spilled chemical cannot exit the designated storage area by constructing a berm / bump at the exit, or store chemicals in a spill tray. • Clean all spillage of fuels, lubricants and other petroleum based products immediately. • The contaminated material must be disposed of in accordance with the waste management procedure. • No hazardous chemical must be discarded in the sewage or storm water system. 	<p>measures in the EMP.</p>		



Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party
				<ul style="list-style-type: none"> Train staff on the use of chemicals in accordance with the risks as described in the material data sheets. Soil contaminated with hazardous chemical substances shall be treated as hazardous waste and removed from site. 			
Vehicle and equipment maintenance and fueling.	Leaking and/or spilling of fuels, greases and oils.	Hydrocarbon pollution of soils, surface- and groundwater.	To prevent hydrocarbon pollution of soils, surface- and groundwater by spilling of fuel, grease or oil and leaking equipment and vehicles.	<ul style="list-style-type: none"> Inspection and maintenance of equipment, generators and vehicles shall take place on a regular basis. Security shall inspect vehicles on entering the facility to ensure vehicles are in sound condition to reduce the risk of oil or diesel spillages. Equipment, generators and vehicles are to be repaired immediately upon developing leaks. Generators must be stored on a concrete floor in a bunded area. Drip trays shall be supplied for all repair work undertaken on machinery on site. Drip trays are to be utilised during daily greasing and re-fuelling of machinery and to contain incidental spills and pollutants. Drip trays are to be inspected daily for leaks and effectiveness and emptied when necessary. This is to be closely monitored during rain events to prevent overflow. Appropriate equipment to deal with emergency spill incidents is to be readily available on site. This includes fire extinguishers, spill kits for hydrocarbon spills, drip trays for equipment and/or machinery leaks, drums or containers for contaminated water. Soil contaminated with hazardous substances, fuel or oil shall be treated as hazardous waste and removed from site. If refueling on site or from drums, the ground must be protected and proper dispensing equipment is to be used i.e. hand pumps and funnels. Drums may not be tipped to dispense fuel. All liquid fuels (petrol and diesel) are to be stored in tanks or containers with lids. 	Internal auditor inspection of the site and maintenance schedule to determine whether vehicle and equipment maintenance and re-fuelling complies with the mitigation measures in the EMP.	Life of operation	Facility Manager
Installation and use of ablution facilities.	Unsanitary conditions on site.	Potential soil-, surface- and/or groundwater contamination.	Prevent soil-, surface- and groundwater pollution from unsanitary conditions	<ul style="list-style-type: none"> Sufficient ablution facilities shall be provided – minimum of 1 toilet per 15 workers. The location of toilets is to be approved by the ECO prior to site establishment, but shall be located within 100m of any work point. Ablution facilities shall be inspected and maintained to prevent or minimise blockage and leakages. 	Internal auditor to inspect the site and maintenance schedule to determine whether the installation and	Life of operation	Facility Manager



Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party
			onsite.	<ul style="list-style-type: none"> Ablution facilities are to be serviced weekly or more frequently, if required. Toilets should have properly closing doors and supplied with toilet paper. Awareness of the importance of proper hygiene should be created among employees. Ablating anywhere other than in the toilets shall not be allowed. 	use of ablution facilities complies with the mitigation measures in the EMP.		
Usage of resources such as electricity and water.	Inefficient and redundant use of a valuable resource.	Wastage/depletion of valuable resources.	To prevent the inefficient and redundant use of valuable resources.	<p>General</p> <ul style="list-style-type: none"> Ensure that all employees have been informed on the importance of natural resources (Proper environmental training and awareness). Regular site inspection by supervisors. Inspect operations regularly to determine areas of improvement with regards to resource consumption. Regular maintenance and inspection of equipment, such as hose pipes, to prevent leaks. Monitoring of resource consumption. Identify areas where resource consumption can be minimised. Set targets to try minimise resource consumption. Identify technologies and practices which may reduce resource consumption. Implementation of technologies and practices which can reduce resource consumption. <p>Water</p> <ul style="list-style-type: none"> Groundwater abstracted from boreholes should take place at a sustainable rate. Regular inspection and maintenance of all boreholes, JoJo tanks, toilets, water pipes and taps. Leaking JoJo tanks, taps, toilets and pipes are to be repaired immediately. Running water taps and pipes may not be left unattended. Each time you flush the toilets approximately 20 litres of water is used, therefore use the toilets accordingly. All pipe/hose and tap connections are to be fitted with correct and appropriate plumbing fittings. <p>Electricity</p> <ul style="list-style-type: none"> Save electricity by turning off lights and computers when leaving the office. Halogen light bulbs convert approximately 80% of the energy used into 	Internal auditor to inspect the site, monitoring report, and maintenance schedule to determine whether the use of resources such as electricity and water complies with the mitigation measures in the EMP.	Life of operation	Facility Manager



Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party
				heat rather than light. Replace spent light bulbs with energy saving CFLs (compact fluorescent light) or newer and more efficient LEDs (light emitting diode).			
Growth of vegetation.	Infestation of alien invasive vegetation.	Loss of indigenous habitat and excessive water usage.	To control alien invasive plant species	<ul style="list-style-type: none"> • Ensure all alien invasive plants are identified on the site. • Ensure an eradication plan for the removal of the alien invasive vegetation is developed. • Ensure all alien invasive vegetation is removed from the site in accordance to the eradication plan. • Areas where alien vegetation was removed should be re-seeded with indigenous grasses. • Alien invasive vegetation will be eradicated and controlled by manual removal, chemical application and/or biological control. The regulations in terms of the Conservation of Agricultural Resource Act, 1983, apply. • Perform a Habitat assessment study annually for three years. 	Internal auditor to inspect the site, monitoring report, habitat assessment, and maintenance schedule to determine whether alien vegetation is removed as per the mitigation measures in the EMP.	Life of operation	Facility Manager
Waste treatment through composting.	Generation of odours at the composting plant.	Potential social impact (nuisance) caused by odours generated.	To minimise the impact of odours created at the composting facility.	<ul style="list-style-type: none"> • Commercial microbial and enzyme products must be added during the commissioning phase of the compost heaps/windrows in order to promote natural decomposition of the organic matter and prevent the generation of odours. • All chemicals and detergents used at the abattoir must be compatible with the bacteria used in the compost process. • Should system failure occur, a suitable starter culture or enzyme must be used to re-establish the optimal composting equilibriums. 	Internal auditor to inspect the site, monitoring report, complaints register, and maintenance schedule to determine whether the composting process occurs as per the EMP mitigation measures.	Life of operation	Facility Manager
Self performance assessment.	Poor risk assessment.	Environmental degradation.	To ensure continual improvement.	<ul style="list-style-type: none"> • Compile a checklist applicable to the site, detailing all operational requirements to manage each identified risk. The checklist should typically contain all the identified aspects. • During the audit/performance evaluation, specific attention should be given to the effectiveness of the EMP mitigation measures. • Ensure that all information obtained from changed processes etc. is communicated to all the applicable documents 	Self performance assessments shall be conducted.	Annually for the life of operation.	Facility Manager
Record keeping.	Poor record	No being able to assess self	To ensure	<ul style="list-style-type: none"> • All records regarding maintenance of equipment, application of pest control, 	Internal audits	Life of operation	Facility Manager

Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party
	keeping.	performance.	record keeping complies with good management practices and to have all records available at any time.	<p>waste management, financial records, rainfall and any other relevant records will be kept for at least two years.</p> <ul style="list-style-type: none"> All the records will be kept on a central point at the office whilst electronic backups will be kept at an offsite location. Any records that need to be kept for longer according to legislation will be kept indefinitely or as long as legislation requires. 	against this EMP must be conducted and records kept on site. Shortcomings must immediately be addressed.		

5.4 POST-CONSTRUCTION AND CONCURRENT REHABILITATION PHASE

Table 5: EMP – Post Construction and Concurrent Rehabilitation

Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party
Rehabilitation of the site.	Removal of structures and infrastructure (such as fencing, signage, equipment, etc.).	Environmental degradation as a result of inapt removal of structures and infrastructure.	To ensure proper removal and disposal of structures and infrastructure.	<ul style="list-style-type: none"> The construction area must be rehabilitated as soon as construction ceases. Remove all construction equipment, storage containers, signage, fencing etc. from site. No unauthorised entry, stockpiling, dumping or storage of equipment outside the site boundary is permitted. Take care to avoid leaks and spills during removal of all temporary fuel- and hazardous chemical stores. Take care to avoid leaks and spills during the removal of all temporary waste storage facilities. Take care to avoid leaks and spills during the removal of all temporary ablution infrastructures. Access roads used during the construction phase should be returned to a condition no worse than before the construction phase. All building rubble and left-over rock should be disposed of at a licensed waste disposal site. 	ECO to inspect site during post construction audit to determine whether the decommissioning activities complied to the mitigation measures in the EMP.	During and after the construction phase.	Facility Manager
Shaping.	Unauthorised backfilling.	Damage to infrastructure (boreholes and/or French drains)	To prevent damage to infrastructure.	<ul style="list-style-type: none"> The area where the facility is to be situated is currently used for dry land farming and will be cleared. Care must be taken during backfilling to prevent damage to existing infrastructure. Backfilling using rock and inert building rubble may only occur subject to approval by the ECO, in consultation with the relevant legislation. 	ECO to inspect site during post construction audit to determine whether the	During and after the construction phase.	Facility Manager

Activity	Aspect	Impact	Objective	Management/ Mitigation Measure	Monitoring compliance and reporting	Timeframes	Responsible Party
	Poor sloping.	Degradation of topography and general appearance.	To prevent the degradation of the natural topography and general appearance.	<ul style="list-style-type: none"> No excavated material or stockpiles shall be left on site and all material remaining after backfilling shall be removed or smoothed over to blend in with the surrounding landscape. Backfilled areas shall be monitored and depressions filled after backfill settles. New slopes should mimic the natural slopes and topography. 	shaping activities complied to the mitigation measures in the EMP.		
	Depositing subsoil above topsoil during backfilling.	Loss of a valuable resource (topsoil).	To prevent loss of a valuable resource (topsoil).	<ul style="list-style-type: none"> When backfilling, deposit subsoil first, followed by the topsoil and compact for the best results. 			

5.5 DECOMMISSIONING PHASE

It is highly unlikely that the composting facility will be decommissioned in the foreseeable future. However, if closure is considered, an extensive decommissioning plan (including closure and rehabilitation) will be drafted and sent to the Department prior to the event.



6. ENVIRONMENTAL AWARENESS PLAN

The following Environmental Awareness Plan must be implemented by AFGRI Poultry in order to inform their employees and contractors of the environmental risk that may result from their work. The plan must be conducted as part of the induction process for all new employees (including contractors) that will perform work in terms of the proposed activities. Proof of all training provided must be kept on-site.

The Environmental Awareness Plan is referred to as the “SHE match” training programme. The training programme focuses on the following aspects:

1. Explaining clearly what the environment is and what the environment consist of namely: air, water, soil, fauna, flora and people.
2. Once participants have grasped the description of what the environment entails, the training focuses on the potential impacts that the construction and operational activities may have on each one of these environmental components. This is done by making use of the aspect register, where each one of the environmental aspects and associated impacts has been identified.
3. To ensure that the training is effective, visual aids are used. Photos are taken of actual and potential impacts occurring on site and in some cases role-play is used to illustrate a potential impact.
4. The participants are then exposed to a poster that reflects the various environmental components. The various photos taken are posted on the poster on a rotational basis and the participants indicate (based on the visual component) what environmental component was or could have been affected by the activities portrayed on the photo.
5. By doing this the participants visualise the action as well as the potential consequence (environmental impact) of their action.
6. This general awareness training must be done before construction commences and also when new employees start work. The training should be done every two years during the Operational Phase. The poster is posted in the communal area where the impacts are visualised and the photos rotated on a monthly basis.

