ENVIRONMENTAL MANAGEMENT PROGRAMME

CONSTRUCTION AND OPERATION OF AN ABATTOIR ON FARM PORTION 1865/2 IN BERLIN, EASTERN CAPE

DEDEAT Ref. No.: *Pending*

Prepared for:
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1 INTRODUCTION

1.1 Objectives of an EMPr

The Environmental Management Programme (EMPr) has been compiled to provide recommendations and guidelines according to which compliance monitoring can be done during the construction and operation of an abattoir on farm portion 1865/2 in Berlin, Eastern Cape (Figure 1.1). The purpose of the EMPr is to provide specifications for "good environmental practice" for application during all the phases of development.

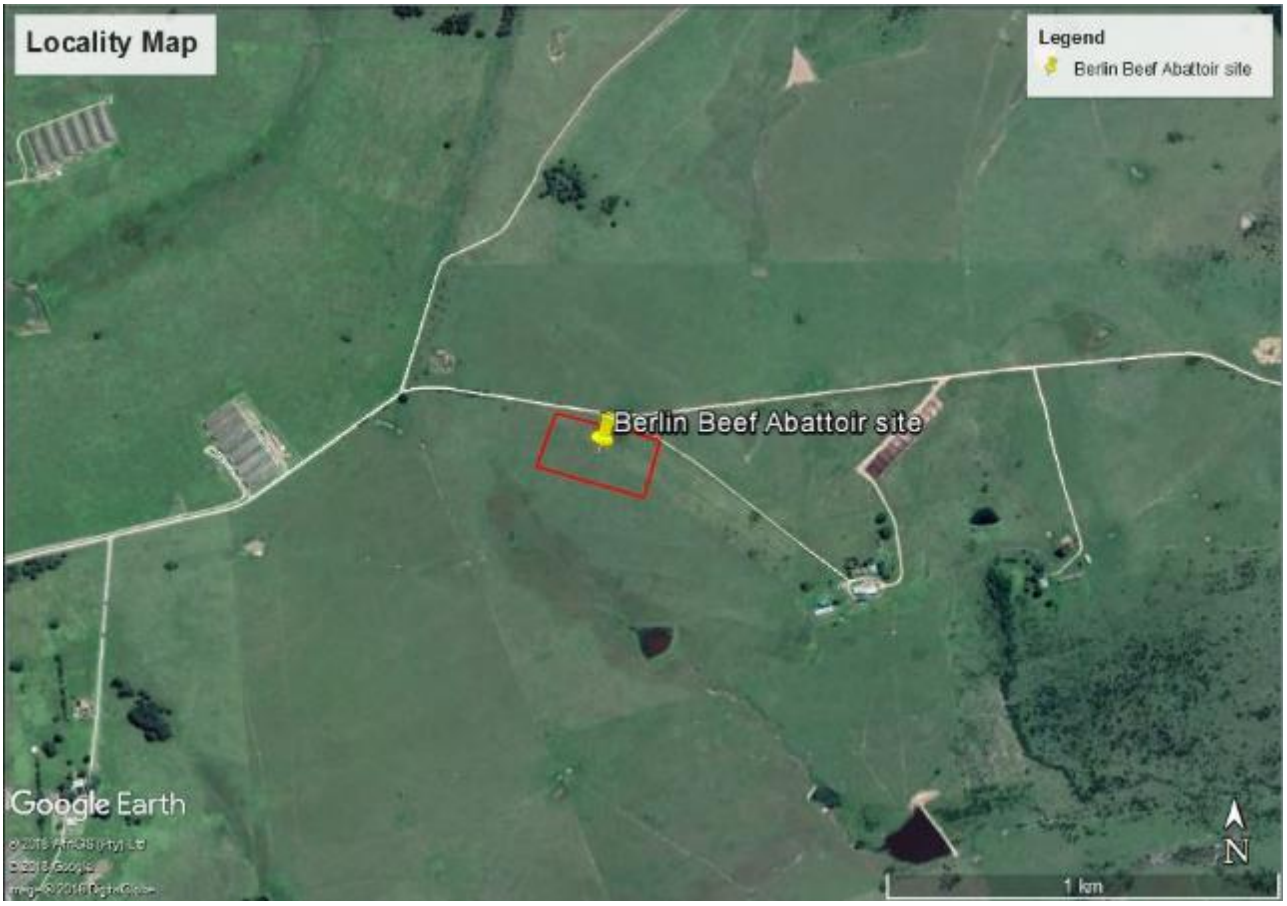

Figure 1.1: Locality of the proposed development.

This EMPr informs all relevant parties (the Project Coordinator, the Contractor(s) and all other staff employed at the site) as to their duties in the fulfilment of the legal requirements for the construction and operation of the abattoir on farm portion 1865/2 in Berlin with particular reference to the prevention and mitigation of anticipated potential environmental impacts.

The objectives of an EMPr are to:

- Ensure compliance with regulatory authority stipulations and guidelines which may be local, provincial, national and/or international.
- Ensure that there is sufficient allocation of resources on the project budget so that the scale of EMPr-related activities is consistent with the significance of project impacts.
- Verify environmental performance through information on impacts as they occur.
- Respond to unforeseen events.
- Provide feedback for continual improvement in environmental performance.
- Identify a range of mitigation measures which could reduce and mitigate the potential impacts to minimal or insignificant levels.

- Detail specific actions deemed necessary to assist in mitigating the environmental impact of the development.
- Identify measures that could optimize beneficial impacts.
- Create management structures that address the concerns and complaints of I&APs with regards to the development.
- Establish a method of monitoring and auditing environmental management practices during all phases of the activity.
- Ensure that safety recommendations are complied with.
- Specify time periods within which the measures contemplated in the final environmental management programme must be implemented, where appropriate.

1.2 Structure and Function of an EMPr

An EMPr is focused on sound environmental management practices, which will be undertaken to minimise adverse impacts on the environment through the lifetime of a development. In addition, an EMPr identifies what measures will be in place or will be actioned to manage any incidents and emergencies that may occur during operation of the facility.

As such the EMPr provides specifications that must be adhered to, in order to minimise adverse environmental impacts associated with all phases of development. The content of the EMPr is consistent with the requirements as set out in Appendix 4 of the EIA regulations 2014 (amended 2017) stated below, for the planning and design, construction and operation phases.

According to APPENDIX 4 of GN R 326, an environmental management programme must include:

(a) Details of –
  (i) The EAP who prepared the environmental management programme; and
  (ii) The expertise of the EAP to prepare an environmental management programme, including a curriculum vitae;

(b) A detailed description of the aspects of the activity that are covered by the draft environmental management programme as identified by the project description;

(c) A map at an appropriate sale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;

(d) A description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including –
  (i) Planning and design;
  (ii) Pre-construction activities;
  (iii) Construction activities;
  (iv) Rehabilitation of the environment after construction and where applicable post closure; and
  (v) where relevant, operation activities;

(f) a description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraphs (d) will be achieved, and must, where applicable include actions to –
  a. Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;
  b. Comply with any prescribed environmental management standards or practices;
  c. Comply with any applicable provisions of the Act regarding closure, where applicable;
  d. Comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;

(g) The method of monitoring the implementation of the impact management actions contemplated

in paragraph (f);

(h) The frequency of monitoring the implementation of the impact management actions contemplated in (f);

(i) An indication of the persons who will be responsible for the implementation of the impact management actions;

(j) The time periods within which the impact management actions contemplated in paragraph (f) must be implemented;

(k) The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);

(l) A program for reporting on compliance, taking into account the requirement as prescribed by the regulations;

(m) An environmental awareness plan describing the manner in which –

a. The applicant intends to inform his or her employees of any environmental risk which may result from their work; and

b. Risks must be dealt with in order to avoid pollution or the degradation of the environment; and

(n) Any specific information that may be required by the competent authority.

1.3 Legal requirements

The Contractor must identify and comply with all South African national and provincial environmental legislation, including associated regulations and all local by-laws relevant to the project. Key legislation currently applicable to the construction and implementation phases of the project must be complied with. The list of applicable legislation provided below is intended to serve as a guideline only and is not exhaustive:-

- The Constitution of the Republic of South Africa Act (No. 108 of 1996).
- National Environmental Management Act (No. 107 of 1998).
- National Environmental Management: Protected Areas Act (No. 57 of 2003).
- National Environmental Management: Biodiversity Act (No. 10 of 2004).
- National Water Act (No. 36 of 1998).
- Hazardous Substances Act (No. 15 of 1973).
- National Heritage Resources Act (No. 25 of 1999).
- National Environmental Management: Waste Management Act (No. 59 of 2008).
- Occupational Health and Safety Act (No. 85 of 1993).
- National Environmental Management: Air Quality Act (No. 39 of 2004).
- National Dust Control Regulations (GN R.827) of the National Environmental Management: Air Quality Act (No.39 of 2004).
- All relevant provincial legislation, municipal by-laws and ordinances.

2 DETAILS OF THE ENVIRONMENTAL ASSESSMENT TEAM

According to APPENDIX 4 of GN R 326, an environmental management programme must include:

(a) Details of –
  (i) The EAP who prepared the environmental management programme; and
  (ii) The expertise of the EAP to prepare an environmental management programme, including a curriculum vitae;

Environmental Assessment Practitioner (EAP):

EOH Coastal & Environmental Services
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Project Team:

- Dr Alan Carter
- Ms Jaclyn Smith

EOH Coastal & Environmental Services (EOH CES) was established in 1990 as a specialist environmental consulting company and has considerable experience in terrestrial, marine and freshwater ecology, the Social Impact Assessment (SIA) process, State of Environment Reporting (SOER), Integrated Waste Management Plans (IWMP), Environmental Management Plans (EMPs), Spatial Development Frameworks (SDF), public participation, as well as the management and co-ordination of all aspects of the Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) processes.

Dr Alan Carter
Alan is the executive of the EOH East London Office. He holds a PhD in Marine Biology and is a Certified Public Accountant, with extensive training and experience in both financial accounting and environmental science disciplines with international accounting firms in South Africa and the USA. He has 25 years' experience in environmental management and has specialist skills in sanitation, coastal environments and industrial waste. Dr Carter is registered as a Professional Natural Scientist under the South African Council for Natural Scientific Professions (SACNASP). He is also registered as an EAP with the Environmental Assessment Practitioners of South Africa (EAPSA) interim EAP certification body.

SACNASP

South African Council for Natural Scientific Professions

herewith certifies that

Alan Robert Carter

Registration number: 400332/04

is registered as a

Professional Natural Scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003 (Act 27 of 2003) in the following fields(s) of practice (Schedule 1 of the Act)

Environmental Science

Effective 31 August 2004 Expires 31 March 2019

President Executive Director

The Interim Certification Board for Environmental Assessment Practitioners of South Africa

Alan Robert Carter

was certified as an

ENVIRONMENTAL ASSESSMENT PRACTITIONER

on this 1st day of March 2012

Chairperson Secretary

Ms Jaclyn Smith

Jaclyn Smith is an Environmental Consultant holding a BSc degree with majors in Geology and Environmental Science from Rhodes University and a BSc Honours degree in Geology from Nelson Mandela Metropolitan University. Jaclyn's honours thesis focused on the sediment disturbance depth over two beaches in Port Elizabeth. Jaclyn has over four years' experience as an environmental consultant and has undertaken various Environmental Impact Studies and Environmental Management Plans.

3 PROPOSED ACTIVITY

According to APPENDIX 4 of GN R 326, an environmental management programme must include:

(b) A detailed description of the aspects of the activity that are covered by the draft environmental management programme as identified by the project description;

(c) A map at an appropriate sale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;

3.1 Description of proposed activity

Berlin Beef is proposing the construction of an abattoir on farm portion 1865/2 in Berlin, Eastern Cape (Figure 1.1).

This will entail the construction of the following, at a minimum:

- An abattoir that will process 150-200 cattle per day;
- A deboning plant; and
- Wastewater treatment plant (WWTP) where wastewater will be treated and reused for cleaning abattoir.

The proposed development will be located adjacent to the existing Berlin Beef feedlot and will cover an area of approximately 40000m^2 (4 Hectares). The deboning plant will generate no waste as everything it produces will be sold. The wastewater treatment plant will have the ability to treat a maximum of 375m^3/day and will produce sludge (approximately 15m^3, reduced to 2.5m^3 per day) which will be taken to Compass Waste Services, for incineration.

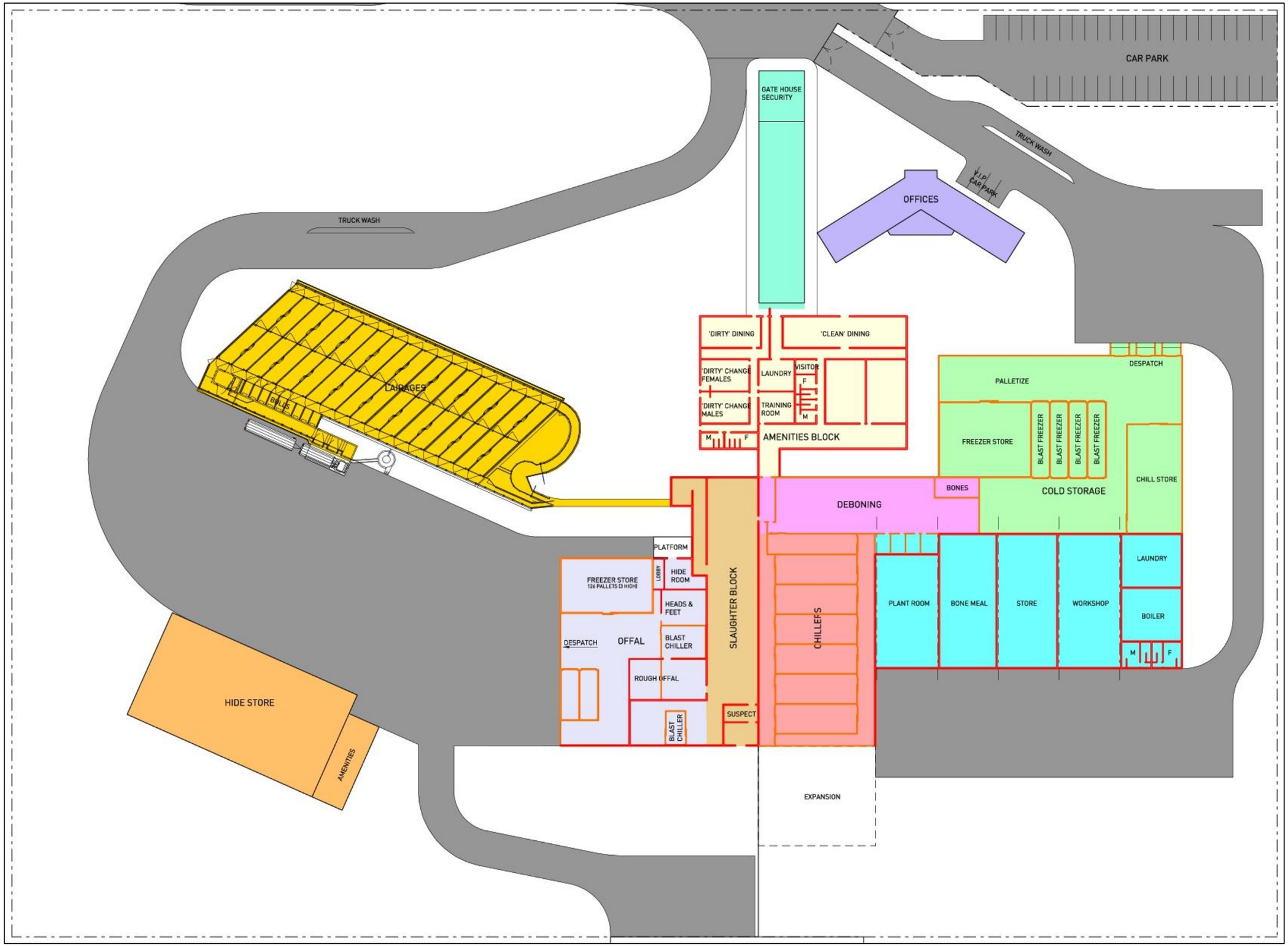

Figure 3.1 Layout plan for the proposed abattoir on farm portion 1865/2 in Berlin, Eastern Cape.

4 SCOPE OF THE EMPr

In order to ensure a holistic approach to the management of environmental impacts during the planning and design, construction and operation of the development this EMPr sets out the methods by which proper environmental controls are to be implemented by the Applicant's Project Manager and/or the Contractor as well as all other parties involved.

The EMPr is a dynamic document subject to influences and changes as are wrought by variations to the provisions of the project specification.

4.1 Layout of the EMPr

The EMPr is divided into three phases of development. Each phase has specific issues unique to that period of the planning and design, construction and operation of the development. The impacts are identified and given a brief description. The phases of the development are identified as below:

4.1.1 Planning and design phase

This section of the EMPr provides management principles for the planning and design phase of the project. Planning, procedures and responsibilities as required during the planning and design phase are specified.

4.1.2 Construction phase

This section of the EMPr provides management principles for the construction phase of the project. Environmental actions, procedures and responsibilities as required during the construction phase are specified. These specifications will form part of the contract documentation and therefore the Contractor will be required to comply with these specifications to the satisfaction of the Applicant's Project Manager and the Environmental Control Officer (ECO).

4.1.3 Operational and maintenance phase

This section of the EMPr provides management principles for the operation and maintenance phase of the project. Environmental actions, procedures and responsibilities as required during the operation and maintenance phase are specified.

5 MITIGATION AND/OR MANAGEMENT MEASURES

According to APPENDIX 4 of GN R 326, an environmental management programme must include:

(d) A description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including–
  (i) Planning and design;
  (ii) Pre-construction activities;
  (iii) Construction activities;
  (iv) Rehabilitation of the environment after construction and where applicable post closure; and
  (v) where relevant, operation activities;

(f) A description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraphs (d) will be achieved, and must, where applicable include actions to –
  (i) Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;
  (ii) Comply with any prescribed environmental management standards or practices;
  (iii) Comply with any applicable provisions of the Act regarding closure, where applicable;
  (iv) Comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;

A variety of potential impacts are associated with the planning and design phase, the construction phase and the operational phase of this project. This section focuses on the mitigation measures associated with each project phase in order to reduce negative impacts.

Table 5.1: Issues and Mitigation Measures associated with the development.

Issue	Mitigation measure
Planning and Design Phase	
Legislation and policy compliance	
During the planning and design phase failure to comply with existing policies and legal obligations could lead to the project conflicting with local, provincial and national policies, legislation etc. This could result in legal non-compliance, fines, overall project failure or delays in construction activity and undue disturbance to the natural environment.	• All relevant legislation and policy must be consulted and the proponent must ensure that the project is compliant with such legislation and policy. • These should include (but are not restricted to): NEMA, Local and District Spatial Development Frameworks, Meat Safety Act, Eastern Cape Biodiversity Conservation Plan (ECBCP), Local Municipal bylaws. • Water Use Licence from DWS must be in place prior to commencement of construction should one be required. • All relevant environmental permits and authorization must be in place prior to commencement of construction.
Stormwater generation	
During the planning and design phase ineffective stormwater design may lead to a potential increase in surface soil erosion and may increase the risk of flooding as well as contamination of water courses due to run off from the	• Appropriate stormwater structures must be designed for all aspects of the development. • All road sections situated on slopes must incorporate stormwater diversion. • The stormwater design should involve the use of permeable surface technology, such as grassed gardens, verges and permeable paving etc.

Issue	Mitigation measure
abattoir.	
General waste	
During the planning and design phase, failure to plan for the storage, handling and disposal of general waste may lead to littering and pollution of the surrounding environment, unsanitary conditions and health risks.	• A proper waste management plan for handling onsite general waste must be designed. • An appropriate area where general waste can be stored during the construction and operation phases before disposal must be identified. • Any temporary storage facility/service yard must comply with the Norms and Standards for the Storage of Waste (2013).
Hazardous waste	
During the planning and design phase, failure to plan for the storage, handling, transport and disposal of hazardous waste may lead to pollution of the surrounding environment and health risks.	• A proper waste management plan for handling onsite hazardous waste must be designed. • An appropriate area where hazardous waste can be stored during the construction and operation phases before disposal must be identified. • Any temporary storage facility/service yard must comply with the Norms and Standards for the Storage of Waste (2013).
Wastewater	
During the planning and design phase, inappropriate design and technology and inferior quality infrastructure used in the WWTP may result in spillages which may contaminate surrounding watercourses.	• Appropriate technology must be chosen for the WWTP and all infrastructure must meet SABS standards. • An effective water quality monitoring programme must be developed to ensure that the quality of treated waste water during operation is suitable. • A generator must be in place at the WWTP in the event that an electricity outage occurs.
Vegetation clearance	
During the planning and design phase the inappropriate layout of the road, stormwater structures and infrastructure will lead to the unnecessary loss of natural vegetation.	• The development must impact on the minimum vegetation area required to complete construction. • If not possible, then the temporary and permanent footprint must be kept to a minimum.
During the planning and design phase the failure to plan for the removal and management of alien vegetation could result in the invasion of alien vegetation during the construction and operation phase.	• A Rehabilitation and Alien Vegetation Management Plan must be designed to reduce the establishment and spread of undesirable alien plant species. • Alien vegetation management must be ongoing during all phases of the development.
Traffic	
During the planning and design phase inadequate planning for increased traffic to and from the development site could result in traffic congestion during the construction and operation phase.	• Appropriate planning should take place for the increase traffic to the development during the construction and operation phase including traffic calming measures and relevant traffic safety measures (flagmen and temporary speed bumps).
Visual aesthetics	
During the planning and design phase inappropriate	• For the buildings, building heights should preferably be restricted to double storey, at most, and tucked into the landscape.

Issue	Mitigation measure
architectural design may lead to visual and aesthetic impacts.	• Architectural guidelines must be formulated with a view to blending buildings into the landscape through selection of specific materials and colours. Natural materials should be adopted if possible (e.g. stone, wood, etc.) and roof and wall colours must be natural (greens, browns and greys).
Construction Phase	
Legislation and policy compliance	
During the construction phase failure to implement mitigation measures specified in the EMPr and EA could result in fines, overall project failure or delays in construction and undue disturbance to the natural environment.	• The developer must employ an independent Environmental Control Officer (ECO) for the duration of the construction phase to audit the contractor's compliance with the specifications in the EA, EMPr and any other additional permits/authorisations.
Stormwater generation	
During the construction phase inappropriate stormwater management measures may lead to an increase in surface soil erosion of stormwater and may result in contamination of surrounding watercourses.	• Berms and swathes must be placed in areas that may be prone to erosion. • Temporary cut-off drains and berms may be required to capture storm water and promote infiltration. • The construction site must be managed in a manner that prevents pollution to downstream watercourses or groundwater, due to suspended solids, silt or chemical pollutants. • The project area must be monitored by an ECO on a regular basis during construction.
General waste	
During the construction phase, poor management of the handling, disposal and storage of general waste may lead to the pollution of the surrounding environment and littering may attract unwanted vermin and make the area aesthetically unappealing.	• A proper waste management plan for handling onsite waste must be implemented. • All general waste must be disposed of in bins/waste skips labelled "general waste". • There must be sufficient waste bins provided throughout the construction site for collecting waste. • All general waste collected on site must ultimately be disposed of at a licensed general waste disposal site. • No waste must be buried or burned on site. • The temporary storage facility/service yard must comply with the Norms and Standards for the Storage of Waste (2013).
Hazardous waste	
During the construction phase, poor management, disposal and storage of hazardous waste may lead to the pollution of the surrounding environment	• All hazardous waste generated on site must be disposed of in impermeable containers/bins that prevent any ingress of rainwater. These containers/bins must be labelled "hazardous waste". • Spill kits must be available on site to deal with any spillages/leaks. • All ablution facilities must be serviced on a regular basis and must be secured to the ground. • All hazardous waste produced on site must be disposed of at a licensed hazardous landfill site or collected by a licenced service provider. • Proof of receipt of hazardous waste by a licenced service provider must be maintained on the site.
Employment	
During the construction phase, the handling of equipment,	• Supply all workers with appropriate PPE.

Issue	Mitigation measure
machinery, any hazardous waste may pose health and safety risks to workers.	• Educate workers on the handling and maintenance of equipment. • Educate workers on the necessary emergency preparedness procedures.
Vegetation clearance	
During the construction phase the uncontrolled clearing of vegetation outside of the project footprint will result in the unnecessary loss of natural vegetation.	• Construction activities must be limited to the designated project footprint. • The construction footprint must be surveyed and demarcated prior to construction commencing. • The surveyed construction footprint must be approved by an ECO to ensure that natural vegetation is not unnecessarily damaged. • Where vegetation has been cleared, site rehabilitation in terms of soil stabilisation and re-vegetation must be undertaken. • The first 150-200mm of soil is generally classified as topsoil. This must be removed and stockpiled separately to the remaining subsoil. • Landscape the impacted areas with 150-200mm of topsoil on top of subsoil during rehabilitation. • Topsoil must not be stockpiled higher than 2m or for longer than 1 year.
During the construction phase, incorrect handling of topsoil will result in limited or no vegetation regrowth during rehabilitation.	
Surface and groundwater contamination	
During the construction phase uncontrolled encroachment of construction activities within or within close proximity to nearby watercourses may result in erosion and sedimentation of nearby watercourses and affect water quality and integrity of surrounding watercourses.	• Stockpiles should be placed at least 50m away. • Ablution facilities at least 100m away. • Construction activities remain within the designated footprint etc.
During the construction phase, accidental contamination of wet concrete (highly alkaline) in the watercourses could result in flash kills of macro-invertebrates and fish species in the vicinity (see appendix B).	• No concrete mixing must take place within 50m of the nearby watercourses. • All concrete mixing must occur on impermeable surfaces. • A serviced fire extinguisher (to neutralise pH levels if a spill occurs) must be available on site in the event that wet concrete is accidentally spilled into a river.
During the construction phase, accidental chemical spills or other spills (effluent from WWTW) in the vicinity of the watercourses will result in water pollution, adversely affecting the aquatic ecosystem.	• No machinery should be parked overnight within 50m of any watercourses. • All stationary machinery must be equipped with a drip tray to retain any oil leaks. • Chemicals used for construction must be stored safely on bunded surfaces in the construction site camp and not within 100m of any watercourses. • Emergency plans must be in place in case of spillages. • No ablution facilities should be located within 100m of any watercourses. • Chemical toilets must be regularly maintained/ serviced to prevent ground or surface water pollution.
During the construction phase,	• No construction material must be stored within 50m of any nearby

Issue	Mitigation measure
stockpiling of construction materials within 50m of a watercourse could result in erosion and mobilisation of the materials into the nearby watercourse, resulting in sedimentation and a decrease in water quality and aquatic habitat	watercourses. • Stockpiles should not be placed within 50m of any nearby watercourses. • Stockpiles must be monitored for erosion and mobilisation of materials towards watercourses. If this is noted by an ECO, suitable cut-off drains or berms must be placed between the stockpile area and the nearest watercourse. • Stockpiles should not exceed 1.5 m in height. • Stockpiles should be covered during windy periods.
Traffic	
During the construction phase the transportation of construction equipment and increase in the use of the servitude road by heavy vehicles may lead to an increase in the amount of traffic and road degradation.	• Local residents should be made aware of the presence of construction vehicles by making use of high-visibility signage. • Road condition should be recorded prior to construction vehicles making use of the roads and any damage caused by construction vehicles should be repaired. • All traffic safety measures should be in place within the site.
Air quality and dust control	
During the construction phase dust generated from construction activities could be a nuisance during windy conditions. Poor maintenance and servicing of construction plant and vehicles may result in an increase in vehicle emissions in the area.	• During windy periods un-surfaced and un-vegetated areas and access roads should be dampened down. • Vegetation should be retained where possible as this will reduce dust travel. • Excavations and other clearing activities must only take place during agreed working times and permitting weather conditions to avoid drifting of sand and dust into neighbouring areas. • Any complaints or claims emanating from dust issues must be attended to immediately and noted in the complaints register. • Vehicles and construction plant must be serviced regularly so as to reduce excessive vehicle emissions.
Visual	
During construction the presence of new trucks, vehicles for construction, set up of construction camp, potential dust etc will affect the aesthetic appeal of the area.	• All construction activity should take place during daylight working hours (i.e. 7 – 5pm). • All construction activity and equipment must be limited to the demarcated areas. • Good housekeeping must be maintained throughout the construction work areas to limit the visual intrusion of the construction activities.
Noise pollution	
During the construction phase construction staff, construction activity and movement of heavy vehicles could result in an increase in ambient noise levels and become a nuisance for surrounding residents.	• Activities which include the movement of construction vehicles and the operation of machinery should be restricted to normal working hours (07:00am – 17:00pm). • There must be a complaints register on site for nearby residents to make complaints. These must be addressed and recorded.
On-site fire risk	
During the construction phase, potential accidental on-site fires may occur due to the machinery and labour intensity.	In order to reduce the risk of fires: • All flammable substances must be stored in dry areas which do not pose an ignition risk to the said substances. • Smoking must not be permitted near flammable substances. • All cooking must be done in demarcated areas that are safe in

Issue	Mitigation measure
	terms of runaway or uncontrolled fires. • No open fires will be allowed on site. • The construction personnel must be educated regarding fire and fire management. • Fire extinguishers must be available onsite.
	Socio-economic
Increase in the number of people and labourers within the area which could result in an increase in crime and potential security risks.	• During the construction phase access to the site must be controlled to ensure no unauthorised people enter the premises. • The construction site must be secured in order to reduce the opportunity for criminal activity in the locality of the site.
	Operation Phase
	Legislation and policy compliance
During the operational phase failure to comply with existing policies and legal obligations could lead to the project conflicting with local, provincial and national policies, legislation etc. This could result in legal non-compliance and fines.	• All relevant legislation and policy must be consulted and the proponent must ensure that the project is compliant with such legislation and policy before operations commence. • All relevant environmental permits and authorization must be in place prior to operation.
	Stormwater generation
During the operational phase inadequate stormwater management may lead to flooding and/or runoff from the abattoir contaminating surrounding water bodies.	• Stormwater management measures such as attenuation structures, channels, etc. must be properly maintained and monitored. • If the stormwater management measures put in place is deemed insufficient, a qualified engineer must be approached to assist with additional storm water attenuation mechanisms and remediation.
	General waste
During the operation phase, inappropriate storage of general waste may result in pollution of the surrounding environment.	• All waste skips/bins must be labelled “general waste”. • All waste skips/bins must be enclosed to prevent ingress of rainwater.
During the operation phase, inadequate disposal of general waste may result in pollution of the surrounding environment.	• All general waste collected on site must be disposed of a registered landfill site if not collected by BCMM on a weekly basis. • A “clean site policy” must be adopted by all employees.
During the operation phase, inappropriate disposal and management of cow dung produced in the cattle holding facilities/lairages could cause contamination and pollution of the surrounding environment.	• The lairages should be equipped with a roof where possible to prevent ingress of rain and stormwater. • All cattle dung should be removed for use as fertiliser on the fields. • Contaminated runoff and water used to clean the lairages must be disposed of through the wastewater treatment system.
	Hazardous waste
During the operational phase, inappropriate storage and disposal of hazardous waste (used paint, oils, chemicals etc) may cause spillages resulting in the contamination of soil and	• All hazardous wastes must be disposed of and stored in impermeable bunded structures/containers until such time as they can be disposed of at a registered hazardous landfill site.

Issue	Mitigation measure
nearby watercourses.	
Wastewater	
During the operational phase, potential solids and blood entering the sewage system could have a major impact on the waste water works and contamination of water courses.	• The water treatment facility and associated infrastructure must be sufficiently maintained and regularly inspected for leaks or problems. • Effluent quality must be monitored by an accredited laboratory. • Appropriate corrective actions must be taken immediately if contamination is detected of effluent quality does not meet the necessary standards.
During the operational phase, the improper use or inadequate maintenance of the on-site wastewater treatment works may lead to contamination of surrounding environment.	• Pipes must be monitored regularly to check for leaks. If leaks are identified or reported by the public, immediate action must be taken to remedy the situation. • The abattoir design must ensure that solid traps are provided for all abattoir inlets that capture solids, trimming and fat. • The blood sump and solid traps must be cleaned out daily after the slaughter line is complete and disposed in accordance with the approved waste management plan.
Employment	
During the operational phase the handling of sick animals and contaminated meat may pose serious health risks to the workers.	• Hygiene controls as stipulated that comply with the necessary standards must be employed. • Regular tests and safety standard checks must be conducted by a qualified professional to identify any potential threats, and adequately get rid of any threat identified.
During the operational phase working with dangerous machinery may pose detrimental safety risks on workers.	• Workers must be trained and educated on the how to use the machinery and on the relevant safety protocols related to the usage of the machinery. • Emergency first aid kits and safety precaution materials must be provided on site.
Vegetation clearance	
During the operational phase the clearance of vegetation for maintenance of infrastructure may lead to the unnecessary loss of natural vegetation.	• All road and pipelines maintenance activities must be limited to the road and pipelines reserve. • No activities must occur outside the road and pipelines reserve without prior approval.
During the operational phase, poor implementation of the Rehabilitation and Alien Vegetation Management Plan may result in alien plant infestation throughout the site and the development of erosion channels.	• The Rehabilitation and Alien Vegetation Management Plan must be implemented to reduce the establishment and spread of alien invasive plant species. • Alien invasive plants must be removed through appropriate methods such as hand pulling, application of chemicals, cutting, etc. as in accordance to the NEMBA: Alien Invasive Species Regulations. • Removal must occur prior to plants developing seeds. • All cleared areas must be continuously rehabilitated with indigenous vegetation for 6 months into the Operational Phase of the project begins or after construction, or until such time that the ECO is satisfied the all affected areas have been rehabilitated.
Surface and groundwater contamination	
During the operational phase accidental spillages or leachate from the sewerage infrastructure could result in ground and surface water	• During the operation phase the sewerage infrastructure must be properly maintained and must be monitored on a regular basis to ensure that the systems are functioning correctly.

Issue	Mitigation measure
pollution. Inadequate maintenance of sewerage and water infrastructure could to spillages or leaks which may contaminate surrounding watercourses.	
Traffic	
During the operational phase, the increase in vehicles to and from the development site may damage roads and disrupt the usual traffic flow.	• Any roads that are degraded as a result of the increase of vehicles in this area must be repaired. • Maintenance of access roads must be regularly undertaken to ensure roads are in adequate condition. • All vehicles utilizing the access roads must drive at the appropriate speed limit.
Air quality and dust control	
During the operational phase, odours from the abattoir may be released into the surrounding regions.	• Avoid keeping animals overnight and all wastes generated by the abattoir must be removed on a daily basis. • Any complaints received from neighbours must be considered and addressed.
Visual aesthetics	
During the operational phase, the sight of animals being delivered to the abattoir and waste from the abattoir may disturb neighbouring farmers or on-lookers.	• Any complaints received from neighbours must be considered and addressed. • Fences can be screened with solid structures or vegetative screening may be implemented.
Noise pollution	
During the operational phase the sound of animals being delivered to the abattoir and waste from the abattoir may disturb neighbouring farmers or on-lookers.	• Avoid keeping animals in lairages overnight and limit the time animals spend in lairages during the day to a minimum.
On-site fire risk	
During the operational phase, potential accidental on-site fires may occur due to the machinery and labour intensity.	• The proposed abattoir must ensure it has adequate fire management plans and emergency preparedness plans.

6 ENVIRONMENTAL MONITORING

According to APPENDIX 4 of GN R 326, an environmental management programme must include:

(g) The method of monitoring the implementation of the impact management actions contemplated in paragraph (f);

(h) The frequency of monitoring the implementation of the impact management actions contemplated in (f);

A monitoring programme should be implemented for the duration of the construction and operation of the project. This programme should include:

- Establishing a baseline of pre-construction site conditions validated with photographic evidence.
- Bi-monthly (fortnightly) monitoring during the first month of construction, where after monthly audits will be conducted by an independent ECO for the remainder of the construction phase to ensure compliance with the EMPr conditions, and where necessary make recommendations for corrective action. Compliance monitoring can be conducted randomly and do not require prior arrangement with the Project Manager.
- Compilation of an audit report with a rating of compliance with the EMPr. The ECO must keep a photographic record of the demarcated site and construction area. The Contractor will be held liable for all unnecessary damage to the environment. A register must be kept of all complaints from the community. All complaints / claims must be handled immediately to ensure timeous rectification / payment by the responsible party.
- Compilation of a final audit report after all site construction and rehabilitation is complete. A final report containing a summary of all compliance monitoring during construction will be compiled at the end of construction.

7 ROLES AND RESPONSIBILITIES

According to APPENDIX 4 of GN R 326, an environmental management programme must include:

(i) An indication of the persons who will be responsible for the implementation of the impact management actions;

7.1 Applicant

Berlin Beef is the applicant and will therefore be the entity monitoring the implementation of the EMPr and compliance with the environmental authorisation. However, the Applicant's Project Manager may appoint a Contractor to implement the project and hence implement the proposed mitigation measures documented in this EMPr on their behalf.

The Applicant's Project Manager must:

- Ensure that all third parties who carry out all or part of the Applicant's obligations under the Contract comply with the requirements of this EMPr;
- Be responsible for obtaining any further environmental permits which are required for the design, construction and operation of the development; and
- Ensure that the infrastructure is maintained and functional during the operational phase of the development.

7.2 Contractor

The successful Contractor is responsible for:

- The finalisation of the EMPr in terms of methodologies (method statements) which are required to be implemented to achieve the environmental specifications contained herein and the relevant requirements contained in the environmental authorisation, if issued by DEDEAT;
- The overall implementation of the EMPr in accordance with the requirements of the environmental authorisation, if issued by DEDEAT;
- Ensuring that all third parties who carry out all or part of the Contractor's obligations under the Contract comply with the requirements of this EMPr;
- Obtaining any environmental permits which are required for the design, construction and operation of the development.

7.3 Environmental Control Officer

For the purposes of implementing the conditions contained herein, the Applicant's Project Manager must appoint an Environmental Control Officer (ECO) for the contract. The ECO will be the responsible person for ensuring that the provisions of the EMPr as well as the conditions of the environmental authorisation are complied with during the construction period. The ECO will be responsible for issuing instructions to the contractor where environmental considerations call for action to be taken. The ECO will submit regular written reports to the applicant, but not less frequently than once a month.
The ECO's duties in this regard will include, inter alia, the following:

- Confirming that all the environmental authorisations and permits required in terms of the applicable legislation have been obtained prior to construction commencing.
- Monitoring and verifying that the EMPr, Environmental Authorisation, other relevant permits and Contract are adhered to at all times and taking action if specifications are not followed.
- Monitoring and verifying that environmental impacts are kept to a minimum.

- Reviewing and approving construction method statements, where necessary, in order to ensure that the environmental specifications contained within this EMPr, environmental authorisation and any other relevant permits are adhered to.
- Inspecting the site and surrounding areas on a regular basis regarding compliance with the EMPr, the Environmental Authorisation and the Contract.
- Monitoring the undertaking, by the Contractor, of environmental awareness training for all new personnel on site.
- Ensuring that activities on site comply with all relevant environmental legislation.
- Ordering the removal of, or recommending spot fines for person(s) and/or equipment not complying with the specifications of the EMPr and/or environmental authorisation.
- Undertaking a continual internal review of the EMPr and submitting any changes to the Applicant's Project Manager for review and approval.
- Checking that the required actions are/were undertaken to mitigate the impacts resulting from non-compliance.
- Reporting all incidences of non-compliance to the Applicant's Project Manager.
- Keeping a photographic record of progress on site from an environmental perspective and recommending additional environmental protection measures, should this be necessary.
- Providing feedback on any environmental issues at site meetings.
- Conduct a final audit of all compliance monitoring conducted during construction.

The ECO must have:

- A good working knowledge of all relevant environmental policies, legislation, guidelines and standards;
- The ability to conduct inspections and to produce thorough, readable and informative reports;
- The ability to manage public communication and complaints;
- The ability to think holistically about the structure, functioning and performance of environmental systems; and
- Proven competence in the application of the following integrated environmental management tools:
  - Environmental Impact Assessment.
  - Environmental management plans/programmes.
  - Environmental auditing.
  - Mitigation and minimisation of impacts.
  - Monitoring and evaluation of impacts.
  - Environmental Management Systems.

The ECO must be fully conversant with this EMPr and the Environmental Authorisation (if issued) and all relevant environmental legislation.

The Applicant's Project Manager will have the authority to replace the ECO if, in their opinion, the appointed officer is not fulfilling his/her duties in terms of the requirements of the EMPr or this specification. Such instruction will be in writing and will clearly set out the reasons why a replacement is required and within what timeframe.

8 COMPLIANCE WITH THE EMPr

According to APPENDIX 4 of GN R 326, an environmental management programme must include:

(j) The time periods within which the impact management actions contemplated in paragraph (f) must be implemented;

(k) The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);

A copy of the EMPr must be kept on site at all times during the construction and operation period. The EMPr will be binding on all staff operating on the site and must be included within the Contractual Clauses.

It should be noted that in terms of Section 28 of the National Environmental Management Act (No. 107 of 1998) those responsible for environmental damage must pay the repair costs both to the environment and human health and the preventative measures to reduce or prevent further pollution and/or environmental damage (The 'polluter pays' principle).

8.1 Non-compliance

The contractors must act immediately when notice of non-compliance is received from any government entity and corrective actions must be implemented. Complaints received regarding activities on the construction site pertaining to the environment must be recorded in a dedicated register and the response noted with the date and action taken.

The Contractor is deemed not to have complied with the EMPr if, *inter alia*:

- There is evidence of contravention of the EMPr specifications within the boundaries of the construction site, site extensions and roads.
- There is contravention of the EMPr specifications which relate to activities outside the boundaries of the construction site.
- Environmental damage ensues due to negligence.
- Construction activities take place outside the defined boundaries of the site.
- The Contractor fails to comply with corrective actions or other instructions issued by the Engineer within a specific time period.

It is recommended that the Contractor institutes penalties for the following less serious violations and any others determined during the course of work as detailed below:

- Littering on site.
- Lighting of illegal fires on site.
- Persistent or un-repaired fuel and oil leaks.
- Any persons, vehicles or equipment related to the Contractor's operations found within the designated "no-go" areas.
- Excess dust or excess noise emanating from site.
- Possession or use of intoxicating substances on site.
- Any vehicles being driven in excess of designated speed limits.
- Removal and/or damage to fauna, flora or cultural or heritage objects on site.
- Urination and defecation anywhere except at designated facilities.

8.2 Emergency preparedness

The Contractor must compile and maintain environmental emergency procedures to ensure that there will be an appropriate response to unexpected or accidental actions or incidents that will cause environmental impacts, throughout the construction period. Such activities may include, inter alia:

- Accidental discharges of polluting substances to water and land.
- Accidental exposure of employees to hazardous substances.
- Accidental fires.
- Accidental spillage of hazardous substances.
- Accidental toxic emissions into the air.
- Specific environmental and ecosystem effects from accidental releases or incidents.

These plans must include:

- Emergency organisation (manpower) and responsibilities, accountability and liability.
- A list of key personnel and contact details.
- Details of emergency services available (e.g. the fire department, spill clean-up services, etc.).
- Internal and external communication plans, including prescribed reporting procedures where required by legislation.
- Actions to be taken in the event of different types of emergencies.
- Incident recording, progress reporting and remediation measures required to be implemented.
- Information on hazardous materials, including the potential impact associated with each, and measures to be taken in the event of accidental release.
- Training plans, testing exercises and schedules for effectiveness.

The Contractor must comply with the emergency preparedness and incident and accident-reporting requirements, as required by the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), the NEMA, 1998 (Act No. 107 of 1998) and the National Water Act, 1998 (Act No. 36 of 1998) and/or any other relevant legislation.

8.3 Incident reporting and remedy

If a leakage or spillage of hazardous substances occurs on site, the local emergency services must be immediately notified of the incident. The following information must be provided:

- The location;
- The nature of the load;
- The extent of the impact; and
- The status at the site of the accident itself (i.e. whether further leakage is still taking place, whether the vehicle or the load is on fire).

Written records must be kept on the corrective and remedial measures decided upon and the progress achieved therewith over time. Such progress reporting is important for monitoring and auditing purposes.

8.4 Penalties to contractors

Where environmental damage is caused or a pollution incident, and/or failure to comply with any of the environmental specifications contained in the EMPr, the Project Applicant and/or contractor will be liable to pay a penalty fine.

The following violations, and any others determined during the course of work, should be penalised:

- Hazardous chemical/oil spill and/or dumping in non-approved sites.
- Damage to sensitive environments.
- Damage to cultural and historical sites.
- Unauthorised removal/damage to indigenous trees and other vegetation, particularly in identified sensitive areas.
- Uncontrolled/unmanaged erosion.
- Pollution of water sources.

9 REPORTING

According to APPENDIX 4 of GN R 326, an environmental management programme must include:

(l) A program for reporting on compliance, taking into account the requirement as prescribed by the regulations;

9.1 Administration

The Contractor must provide the Applicant's Project Manager and/or the ECO with a written method statement, prior to the commencement of the construction phase, setting out the following:

- The type of construction activity.
- Locality where the activity will take place.
- Identification of impacts that might result from the activity.
- Identification of activities that may cause an impact.
- Methodology and/or specifications for impact prevention for each activity or aspect.
- Methodology and/or specifications for impact containment for each activity or aspect.
- Emergency/disaster incident and reaction procedures.
- Treatment and continued maintenance of the impacted environment.

New submissions must be given to the Applicant's Project Manager and/or the ECO whenever there is a change or variation to the original.

The Applicant's Project Manager and/or the ECO should provide comment on the methodology and procedures proposed by the Contractor but they will not be responsible for the Contractor's chosen measures of impact mitigation and emergency/disaster management systems.

9.2 Good housekeeping

The Contractor must undertake "good housekeeping" practices during construction. This will help avoid disputes on responsibility and allow for the smooth running of the contract as a whole. Good housekeeping extends beyond the wise practice of construction methods to include the care for and preservation of the environment within which the construction activities are situated.

9.3 Record keeping

The Applicant's Project Manager and/or the ECO will continuously monitor the Contractor's adherence to the approved impact prevention procedures and the ECO must issue the Contractor a notice of non-compliance whenever transgressions are observed. The ECO should document the nature and magnitude of the non-compliance in a designated register, the action taken to discontinue the non-compliance, the action taken to mitigate its effects and the results of the actions. The non-compliance will be documented and reported to the Applicant's Project Manager in the monthly report. These reports must be made available to DEDEAT when requested.

9.4 Document control

The Applicant's Project Manager and/or the ECO will be responsible for establishing a procedure for electronic document control. The document control procedure should comply with the following requirements:

- Documents must be identifiable by organisation, division, function, activity and contact person.

- Every document must identify the personnel and their positions, who drafted and compiled the document, who reviewed and recommended approval, and who finally approved the document for distribution.
- All documents must be dated, provided with a revision number and reference number, filed systematically, and retained for a five year period.

The Applicant's Project Manager and/or the Contractor must ensure that documents are periodically reviewed and revised, where necessary, and that current versions are available at all locations where operations essential to the functioning of the EMPr are performed. All documents must be made available to the ECO and other independent external auditors.

10 ENVIRONMENTAL AWARENESS

According to APPENDIX 4 of GN R 982, an environmental management programme must include:

(m) An environmental awareness plan describing the manner in which –

(i) The applicant intends to inform his or her employees of any environmental risk which may result from their work; and

(ii) Risks must be dealt with in order to avoid pollution or the degradation of the environment;

Contractors must ensure that their employees and any third party that carries out all or part of the Contractor's obligations are adequately trained with regard to the implementation of the EMPr, as well as regarding environmental legal requirements and obligations.

Environment and health awareness training programmes should be targeted at three distinct levels of employment, i.e. project manager, supervisor and labour.

The appointed ECO must provide training and ensure that records of all training interventions are kept in accordance with the record keeping and documentation control requirements as set out in this EMPr.

The environmental training should, as a minimum, include the following:

- Environmental legal requirements and obligations.
- The importance of conformance with all environmental policies.
- The environmental impacts, actual or potential, of their work activities.
- The environmental benefits of improved personal performance.
- Their roles and responsibilities in achieving conformance with the environmental policy and procedures, including emergency preparedness and response requirements.
- The potential consequences of departure from specified operating procedures.
- The mitigation measures required to be implemented when carrying out their work activities.
- Details regarding floral/faunal species of special concern and protected species, and the procedures to be followed should these be encountered during construction activities.
- The importance of not littering.
- The importance of using supplied toilet facilities.
- The need to use water sparingly.
- Details of and encouragement to minimise the production of waste and re-use, recover and recycle waste where possible.

11 CLOSURE PLANNING

11.1 Final site restoration

The Contractor must clear and restore the site and ensure that all excess building material and construction debris is removed from site once the construction phase has been completed.

11.2 Rehabilitation

The Contractor (landscape architect/horticulturist) will be responsible for the rehabilitation and re-vegetation of all disturbed areas earmarked for conservation during construction to the satisfaction of the Applicant's Project Manager and/or the ECO.

11.3 Post-construction audit

A post-construction audit must be carried out for submission to the Applicant. Objectives should be to audit compliances with the key components of the EMPr, to identify the main areas requiring attention and recommend priority actions. The audit should be undertaken annually and should cover a cross section of issues, including implementation of environmental controls, environmental management and environmental monitoring.

Results of the audits should inform changes required to the specifications of the EMPr or additional specifications to deal with any environmental issues which arise on site and have not been dealt with in the current document.

12 CONCLUSIONS

Although all foreseeable actions and potential mitigations or management actions are contained in this document, the EMPr should be seen as a day-to-day management document. The EMPr thus sets out the environmental and social standards that would be required to minimise the negative impacts and maximise the positive benefits of the construction and operational activities.

All attempts should be made to have this EMPr available, as part of any tender documentation, so that the Engineers and Contractor are made aware of the potential cost and timing implications needed to fulfil the implementation of the EMPr, thus adequately costing for these.

The EMPr will be reviewed by the ECO on an on-going basis. Based on observations during site inspections and issues raised at site meetings, the ECO will determine whether any procedures require modification to improve the efficiency and applicability of the EMPr on-site.

Any such changes or updates will be registered in the ECOs records, as well as being included as an annexure to this document.

It is the responsibility of Berlin Beef to ensure the Operational Phase mitigation measures are followed.

APPENDIX A

PROPOSED ENVIRONMENTAL EDUCATION COURSE OUTLINE

http://www.webweaver.nu/clipart/environmental.shtml

Reasons why should we look after the environment

- We have a right to a clean environment
- A clean environment is essential to healthy living
- All our basic needs come from the environment
- A contract has been signed – development vs the environment
- Penalties / fines could be issued

How to look after the environment

- Report issues
- Teamwork
- Follow the set rules and guidelines (EA, EMPr, Method statements etc.)
- Conserve, reuse and recycle

Tips and Guidelines

- Workers and equipment should not be allowed outside demarcated areas
- No swimming or polluting of water bodies allowed
- No damage / disturbance to vegetation or water bodies without consent / permits
- No disturbance allowed in no-go areas
- No hunting of animals
- Report all fires
- No burning or burying of waste
- No smoking near hazardous materials
- Training on fire fighting equipment
- Hazardous materials to be stored in designated and bunded areas
- Spill kits and drip trays a must
- Report all spills
- Control dust and Noise
- Maintain construction vehicles
- Availability and maintenance of sanitation facilities

Tips and Guidelines

- Only eat is designated areas
- Do not litter
- Vehicles to remain on approved tracks and adhere to speed limit
- Ensure emergency phone numbers are available
- Ensure PPE is worn
- Report fires, leaks and injuries
- Ask if unsure

APPENDIX B

EXAMPLE OF A METHOD STATEMENT

METHOD STATEMENT

CONTRACT:…….... **DATE**:…….

PROPOSED ACTIVITY (give title of Method Statement and reference number from the EMPr):

WHAT WORK IS TO BE UNDERTAKEN (give a brief description of the works):

WHERE ARE THE WORKS TO BE UNDERTAKEN (where possible, provide an annotated plan and a full description of the extent of the works):

START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:

Start Date:

End Date:

HOW ARE THE WORKS TO BE UNDERTAKEN (provide as much detail as possible, including annotated sketches and plans where possible):

*** Note: Please attach additional pages should you require more space.**

DECLARATIONS

1) ENVIRONMENTAL CONTROL OFFICER (ECO)

The work described in this Method Statement, if carried out according to the methodology described, is satisfactorily mitigated to prevent avoidable environmental harm:

_____ _____

(Signed) (Print name)

Dated:._____

2) PERSON UNDERTAKING THE WORKS

I understand the contents of this Method Statement and the scope of the works required of me. I further understand that this Method Statement may be amended on application to other signatories and that the ECO will audit my compliance with the contents of this Method Statement

_____ _____

(Signed) (Print name)

Dated: _____