

GREEN DOOR environmental

ENVIRONMENTAL MANAGEMENT PROGRAMME

**Proposed expansion of Bloubank Estates CC's
Taaibosch Piggery, located on Rem of the Farm
Taaiboschspruit 400, IQ, Portions 2 & 12 of the
Farm Kaalplaats 394, and Portions 1, 4 & 5 of
the Farm Taaiboschpruit 401, IQ, Fochville,
Merafong City Local Municipality, Gauteng**

EIA Ref. No. 12/12/20/1843

PREPARED FOR BLOUBANK ESTATES CC

5 February 2015



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1 INTRODUCTION

The proposed project involves the upgrade and expansion of the existing Taaibosch Piggery. This facility is located on Rem of the Farm Taaiboschspruit; Portions 2 & 12 of the Farm Kaalplaats 394 and Portion 1 of the Farm Taaiboschspruit 401, IQ, Fochville, Merafong City Local Municipality, Gauteng.

The properties are collectively approximately 36 ha in extent, are all unzoned and currently feature agricultural activities in the form of the above-mentioned operational piggery.

The Piggery has recently undergoing an Environmental Authorisation Process for a Biogas installation under the National Department for Environmental Affairs. As a fundamental aspect of the Biogas installation is the establishment of an anaerobic lagoon (which requires a Waste License), assessment of the new lagoon has not been included in this Application. The Biogas Application Authorisation was received on 15th October 2012 (ref No. EIA No: 12/12/20/1984).

2 AIM AND PURPOSE OF AN ENVIRONMENTAL MANAGEMENT PROGRAMME

The aim of this EMP is to identify and minimise, as far as possible, potential impacts that the development may have on the surrounding biophysical and socio-economic environment during the following phases:

- Pre-construction and planning;
- Construction;
- Post construction and rehabilitation;
- Operational / occupation; and
- Decommissioning.

The purpose of this EMP is to:

- Encourage good management practices through planning and commitment to environmental issues;
- Define how the management of the environment is reported and performance evaluated;
- Provide rational and practical environmental guidelines to:
 - Minimise disturbance of the natural environment;
 - Prevent or minimise all forms of pollution;
 - Protect indigenous flora and fauna;
 - Comply with all applicable laws, regulations, standards and guidelines for the protection of the environment; and
 - Adopt the best practicable means available to prevent or minimise adverse environmental impacts.
- Describe all monitoring procedures required to identify impacts on the environment; and
- Make employees and the CE aware of environmental obligations.

3 ENVIRONMENTAL COMPLIANCE

3.1 Responsibilities for environmental management

The Environmental Control Officer (ECO), Project Manager (PM), Property Owner (PO) and Contracted Engineer (CE) (and / or its agents) will be responsible for environmental management on site during all five phases (planning, construction, rehabilitation, operation and decommissioning). Surrounding land owners, residents or tenants will be notified in advance of any potentially disturbing activities during the project.

The independent Environmental Assessment Practitioner (EAP) is required to act as the ECO and conduct monthly inspections of the construction activities and EMPr implementation throughout the duration of the project. During the project the ECO will produce brief monitoring reports which will be submitted to the Client as well as to the Compliance Unit of the Gauteng Department of Agriculture and Rural Development (GDARD).

3.2 Training of Employees

The ECO and the PM have a responsibility to ensure that all those people involved in the project are aware of and are familiar with the contents of this EMPr. This EMPr must form part of the Terms of Reference (ToR) for all CE, Sub-contractors, Suppliers, Staff and Visitors.

During the planning, construction and rehabilitation phases, the CE and his Sub-contractors have to give assurance that they understand the EMPr and that they comply with the conditions therein. All senior and supervisory staff members must familiarise themselves with the full contents of this EMPr. They must know and understand specifications of the EMPr and be able to assist other staff members in matters relating to the EMPr.

During the operational phase, the PM, as well as the PO and all senior and supervisory staff members, must understand and comply fully with the contents of this EMPr. In addition, all other site personnel must be educated in the contents of this document.

An Environmental Awareness Training Programme for all staff members will be arranged by the CE and the ECO (during construction and rehabilitation), and the PM (during operation). Before commencing with any work, all staff members will be appropriately briefed about the EMPr and relevant occupational health and safety issues. In addition, this training will be repeated for any new personnel that join the facility.

3.3 Complaints Register and Environmental Incident Book

All complaints received will be investigated and a response (even if pending further investigation) will be given to the complainant within seven working days. All environmental incidents occurring on site will be recorded (refer to Appendix A).

The following information for each incident will be recorded:

- Time, date, location and nature of the incident; and
- Actions taken and by whom.

Any complaints received from the community during the lifetime of the project will be registered and recorded by the CE, PO and / or PM on site. The complaint will be brought to

the attention of the ECO, who will ensure that the CE and / or PM responds accordingly. The following information will be recorded (refer to Appendix B):

- Time, date and nature of the complaint;
- Response and investigation undertaken; and
- Actions taken and by whom.

3.4 Environmental Monitoring

Environmental monitoring of the construction, rehabilitation and operational phases of the development will be undertaken by the ECO. Monitoring will be undertaken to ensure compliance with all aspects of the EMPr.

In order to facilitate communication between the ECO, PM, CE and senior and supervisory staff members, it is important that a suitable chain of communication is structured that will ensure that the ECO's recommendations have the full backing of the project team before being conveyed to the necessary person. In this way, penalties as a result of non-compliances with the EMPr may be justified as failure to comply with the EMPr.

During the construction and operation phases, the ECO will communicate any environmental issues to the PM, who will in turn, communicate these concerns to the appropriate individual.

The GDARD is the overriding authority regarding environmental compliance for this project.

3.5 Non-Compliance with the EMPr

Difficulties may be encountered with carrying out mitigation measures that could result in future non-compliance. The CE and / or PM shall put in place procedures to motivate staff members to comply with this EMPr, and to deal with acts of non-compliance, or malicious damage to the environment. Penalties for non-compliance will be discussed with the CE and / or PM at the earliest stage.

The ECO may propose EMPr amendments on behalf of the proponent or issue EMPr Instructions (corrective actions, remediation and rehabilitation). These amendments or instructions issued by the ECO shall be implemented within the specified timeframe.

4 LEGISLATIVE FRAMEWORK

4.1 The constitution of the Republic of South Africa Act (Act 108 of 1996)

The Constitution of the Republic of South Africa is the legal source of all law, including environmental law, in South Africa. The Bill of Rights is fundamental to the Constitution of the Republic of South Africa and in, Section 24 states that:

Everyone has the right (a) to an environment that is not harmful to their health or well-being; and (b) to have the environment protected, for the benefit of present and future generations through reasonable legislative and other measures that (1) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use natural resources while promoting justifiable economic and social development.

4.2 National Environmental Management Act (Act 107 of 1998)

The National Environmental Management Act is South Africa's overarching environmental legislation and has, as its primary objective to provide for co-operative governance by establishing principles for decision making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state and to provide for matters connected therewith (Government Gazette, 1989).

The Act provides for the right to an environment that is not harmful to the health and well being of South African citizens; the equitable distribution of natural resources, sustainable development, environmental protection and the formulation of environmental management frameworks (Government Gazette, 1998).

In terms of Section 28 (1) of the NEMA:

"(1) Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment. (2)..."

4.3 Environment Conservation Act, 1989 (ECA)

A major part of the regulations contained in the Environmental Conservation Act (ECA) have been repealed and replaced by NEMA. However, regulations pertaining to noise pollution are still applicable and these are mainly set out and implemented by the provincial government.

4.4 National Environmental Management: Waste Act (NEMWA) 2008 (No. 59 of 2008)

The project activity requires a Waste Management Licence under the NEMWA. Under the Act, the Minister of Water and Environmental Affairs is the licensing authority in respect of all activities listed in both categories of Schedule 1 of NEMWA. The application for a waste management licence in terms of section 45 of the National Environmental Management Waste Act 2008 (59 of 2008), must be submitted by lodging an application with GDARD (the Competent Authority for this project).

4.5 National Waste Management Strategy

The major objective of the strategy is to establish a waste hierarchy underpinned by integrated waste management planning. The strategy further alludes to sustainable development under the following goals and objectives:

- Achieving integrated waste management planning;
- Avoiding and minimising the generation of waste;
- Promoting and ensuring the effective delivery of waste services;
- Reducing, re-using, recycling and recovering waste;
- Treating and safely disposing of waste as a last resort; and
- Remediating land where contamination presents a significant risk of harm to health or the environment.

4.6 Sustainable Development

The principle of Sustainable Development has been established in the Constitution of the Republic of South Africa (108 Of 1996) and given effect by NEMA Section 1 (“() of NEMA states that:

“(29).... Sustainable development means the integration of social, economic and environmental factors into the planning, implementation and decision making process so as to ensure that development serves present and future generations”.

Similarly the guiding principle established in Section 2 (3) of NEMA state that:

“2(3) Development must be socially, environmentally and economically sustainable. (4)(a) Sustainable development requires the consideration of all relevant factors including the following: (i) that the disturbance of ecosystems and loss of biological diversity are avoided, or where they cannot be altogether avoided, or where they can be altogether avoided, are minimised and remedied... (vii) that negative impacts on the environment and on peoples environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied”.

Thus Sustainable Development requires that there is An integration of social, environmental and developmental concerns and that greater attention to each of these aspects of development will lead to the fulfilment of basic needs, improved living standards for all, better protected and managed ecosystems and a safer, more prosperous future (United Nations Department of Economic and Social Affairs, Division of Sustainable Development, 1992).

4.7 Polluter Pays Principle

The ‘polluter pays’ principle provides that “the cost of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment. NEMA imposes a duty of care (Section 28 of NEMA) on every person who causes, has caused or may cause significant pollution or degradation of the environment to take reasonable measures to prevent the pollution or degradation of the environment from occurring, continuing or recurring. Insofar as such harm to the environment is authorised by law or cannot reasonably be avoided, NEMA requires that the pollution must be minimised and rectified.

5 PROJECT DESCRIPTION AND LOCATION

The proposed project involves the upgrade and expansion of the existing Taaibosch Piggery. This facility is located on Rem of the Farm Taaiboschspruit; Portions 2 & 12 of the Farm Kaalplaats 394 and Portion 1 of the Farm Taaiboschspruit 401, IQ, Fochville, Merafong City Local Municipality, Gauteng.

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Refer to Figure 1 below.

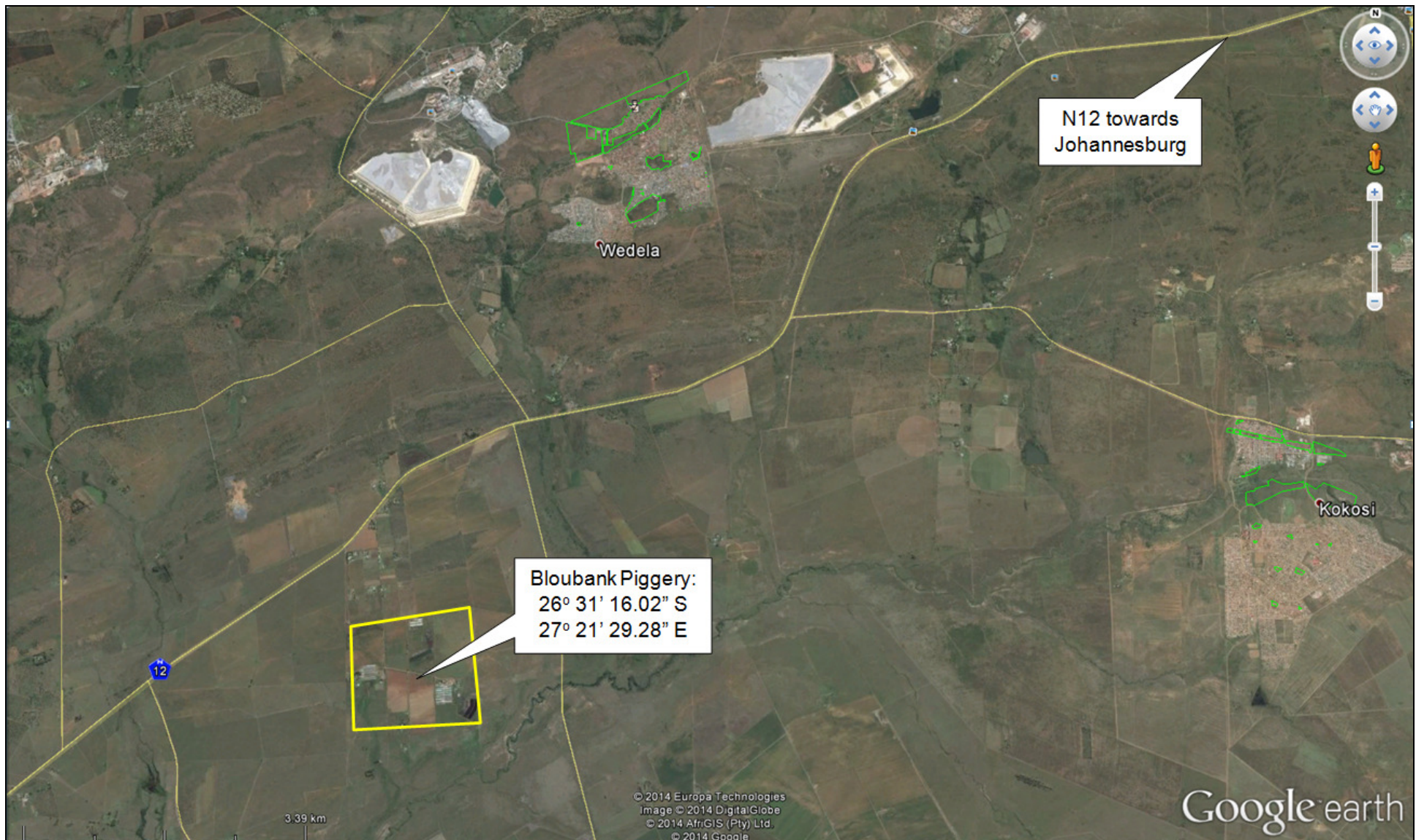


Figure 1: Aerial map showing the location of Bloubank Piggery and the surrounding areas (Google Earth).

6 PRE-CONSTRUCTION

PRELIMINARY ACTIVITIES

Potential environmental impacts, impact sources and objectives are described, and environmental management mitigation measures to be implemented during construction are specified. The CE shall adhere to these measures at all times.

In the tables that follow, Contracted Engineer, Environmental Control Officer, Property Owner and Project Manager have been abbreviated to CE, ECO, PO and PM respectively.

LAYOUT	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
<p>The CE is to adhere to the following with regards to the Materials Storage Area:</p> <ul style="list-style-type: none"> ◆ The site selected must be approved by the ECO. If the ECO is not satisfied with the proposed site, alternative sites must be proposed and discussed with the ECO until an acceptable compromise is reached. ◆ The extent of the storage area must be defined and all activities must be confined within this area. The ECO will be required to authorise any extension or change in location of the storage area. ◆ The storage area must be adequately fenced to discourage the theft of materials and equipment from the site. ◆ The storage area is to be maintained in a neat and orderly state at all times. 	CE/ECO	Before construction	Site inspection	
<ul style="list-style-type: none"> ◆ Provision must be made for adequate ablution facilities. 	CE/ECO	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ Adequate parking must be provided for site staff and visitors. 	CE/PM	During site establishment	Site inspection	
<ul style="list-style-type: none"> ◆ All servitudes and existing services to be verified prior to construction. 	CE/ECO/PM	Before construction	Site inspection	
ABLUTIONS	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
<ul style="list-style-type: none"> ◆ Potable water must be available at all times at various points within the construction site. 	CE/ECO	Before and during construction	Site inspection	
<ul style="list-style-type: none"> ◆ A reputable company, approved by the CE, must provide portable chemical toilets. 	CE /ECO	During site	Site	

Such toilets must be available for all staff.		establishment	inspection	
◆ Toilets must be no closer than 100m from any natural water body watercourses (Section 1 (24 and 29) National Water Act (36 of 1998)).	CE /ECO	During site establishment	Site inspection	
◆ The construction of long drop toilets is forbidden.	CE /ECO	Ongoing	Site inspection	
◆ Under no circumstances may surrounding open areas be used as a toilet facility.	CE /ECO	Ongoing	Site inspection	
◆ Under no circumstances may local drainage lines or streams be used as a toilet or cleaning facility by workers on site.	CE /ECO	Ongoing	Site inspection	
PROVISION FOR SITE WASTE DISPOSAL	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / x
◆ An adequate number of waste receptacles must be available at strategic locations around the construction site for gathering all domestic refuse, and to minimise littering.	CE/ECO	Ongoing	Site inspection	
◆ Bins must be lined for efficient control and safe disposal of waste.	CE/ECO	Ongoing	Site inspection	
◆ Recycling and the provision of separate waste receptacles for different types of waste must be encouraged.	CE/ECO	Ongoing	Site inspection	
◆ The excavation and use of rubbish pits on site is forbidden.	CE/ECO	Ongoing	Site inspection	
◆ A fenced area must be allocated for waste sorting and disposal.	CE/ECO	During site establishment	Site inspection	
GENERAL SUBSTANCES AND MATERIALS	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / x
◆ Storage areas must be designated, demarcated and adequately fenced if necessary.	CE/ECO	Before construction	Site inspection	
◆ No fuel is to be stored on site.	CE/ECO	Duration of construction	Site inspection	
◆ A designated working area must be constructed and must be underlain by an impermeable surface (e.g. a concrete slab or plastic lining).	CE/ECO	During site establishment	Site inspection	
◆ All handling of potentially toxic or hazardous material, and the repair, maintenance and storage of vehicles and equipment must be undertaken on the impermeable working surface in accordance with the Materials Safety Data Sheets (MSDS).	CE/ECO	Ongoing	Site inspection and review	

			of MSDSs	
◆ Fire prevention facilities must be present and easily accessible at all storage facilities.	CE/ECO	During site establishment	Site inspection	
RISKS ASSOCIATED WITH MATERIALS ON SITE	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / x
◆ The stockpiling of soil or any other materials shall not be allowed near a watercourse or water body to prevent pollution or impediment to surface runoff. The developer must control and establish suitable mitigation measures to prevent the erosion of the stockpiles.	CE/ ECO	Ongoing	Site inspection	
◆ Flammable materials should be stored as far as possible from adjacent residential / industrial areas.	CE /ECO	During site establishment	Site inspection	
◆ Fire fighting equipment is to be present on site at all times in accordance with the Occupational Health and Safety Act (85 of 1993).	CE /ECO	During site establishment	Site inspection and review of OHAS	
◆ Obstruction to drivers' line of sight as a result of stockpiles must be avoided, especially at intersections and on corners.	CE /ECO	Ongoing	Site inspection	
◆ Residents, tenants and land owners adjacent to the site are to be notified in advance of any known potential risks with the construction site and associated activities.	CE	Ongoing	Liaison between CE and neighbours	
HAZARDOUS SUBSTANCES AND MATERIALS	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / x
◆ Material Safety Data Sheets (MSDS's) must be readily available for all chemicals / hazardous substances to be used on site. Where possible and available, MSDS's should include additional information on ecological impacts and measures to minimise and mitigate against any negative environmental impacts in the result of an accidental spill. Refer to Appendix C for MSDSs.	CE /ECO	Before construction commences	Review of MSDSs	
◆ Hazardous storage areas must be bunded with an impermeable liner to protect water quality.	CE /ECO	During site establishment	Site inspection and review of methods statement	
◆ Storage areas containing hazardous substances / materials must be clearly sign-posted.	CE /ECO	During site establishment	Site inspection	

◆ The CE must submit a methods statement and plans for the storage of hazardous materials and emergency procedures. Refer to Appendix D for the Spill Contingency Plan and Appendix E for methods statement.	ECO	Prior to establishment of storage area	Site inspection and review of methods statement	
◆ The CE must compile an inventory of all hazardous substances to be used and stored on the site, and must ensure that they know the effects of these substances on their staff and the environment. A copy of this inventory must be supplied to the ECO.	CE/ECO	Ongoing	Site inspection and review of inventory.	
◆ Staff handling hazardous substances / materials must be aware of their potential impacts and follow appropriate safety measures. Appropriate personal protective equipment (PPE) must be made available.	CE /ECO	During staff induction / Ongoing	Site inspection, inspection of PPE and liaison with personnel	
◆ The CE must ensure that the necessary materials, equipment and chemicals are available on the site to deal with spills of any of the hazardous materials present .The CE must ensure that all staff members are trained on how to use a spill kit.	CE/ ECO	Ongoing	Site inspection	
◆ The CE must devise a procedure for dealing with accidental spills, which has to be approved by the ECO. The procedure must distinguish between those spills that can be cleaned up by the CE and those that will require specialist input. The name and contact numbers of various clean up companies must be posted on site. This procedure must also include a provision to notify the ECO of any spills (refer to Appendix D for the Spill Contingency Plan).	CE/ECO	Prior to moving onto site	Review of procedures and poster	
MATERIALS MANAGEMENT	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / x
◆ CE shall prepare a source statement indicating the sources of all materials and submit these to the ECO for approval prior to the commencement of any work. Refer to Appendix F for materials source statement.	CE /ECO	On award of contract	Review of source statement	
◆ A signed document from the supplier of natural materials must be obtained confirming that they have been obtained in a sustainable manner and in compliance with relevant legislation (if applicable).	ECO/PM	On receipt of natural materials	Review of signed document	
ENVIRONMENTAL EDUCATION AND AWARENESS	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / x
◆ It must be ensured that all site personnel have a basic level of environmental awareness training. The CE must ensure that all construction staff are aware of the	CE /ECO	During staff induction / Ongoing	Site inspection and staff	

<p>following:</p> <ul style="list-style-type: none"> - What is meant by “environment”; - Why the environment needs to be protected and conserved; - How construction activities can impact on the environment; - What can be done to mitigate against such impacts; - Awareness of emergency spills response provisions; and - Social responsibility during construction (being considerate to residents etc.). 			interviews	
<ul style="list-style-type: none"> ◆ It is the ECO’s and CEs’ responsibility to provide the site foreman with no less than 1 hour’s environmental training and to ensure that the foreman has sufficient understanding to pass this information onto the construction staff. 	CE/ECO	Prior to moving onto site	Site inspection and liaison with CE and Foreman	
<ul style="list-style-type: none"> ◆ Translators are to be used if necessary, to ensure that all staff understand what is required of them in terms of the EMP. 	ECO	Ongoing	Site inspection and liaison with CE and Foreman	
<ul style="list-style-type: none"> ◆ The CE / ECO must be on hand to explain any technical issues and to answer questions. 	CE /ECO	Ongoing	-	
<ul style="list-style-type: none"> ◆ The need for a ‘clean site’ policy needs to be explained to everyone working on site. 	ECO	During staff induction, followed by ongoing monitoring	Site inspection and liaison with CE and Foreman	
WORKER CONDUCT ON SITE	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
<ul style="list-style-type: none"> ◆ A general regard for the social and ecological well-being of the site and surrounding areas is expected of the site staff. Workers need to be made aware of the following rules: - No alcohol / drugs to be allowed on site; - No firearms allowed on site or in vehicles transporting staff to / from the site; 	CE /ECO	During staff induction, followed by ongoing monitoring.	Site inspection and liaison with CE, Foreman and Personnel	

<ul style="list-style-type: none"> – Prevent excessive noise; – No harvesting of firewood from the site or from areas adjacent to it; – Construction staff are to make use of the facilities provided for them, as opposed to ad hoc alternatives; – Trespassing on private / commercial properties adjoining the site is forbidden; and – Driving under the influence of alcohol is prohibited. 				
DUST / AIR POLLUTION	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / x
◆ The CE must make alternative arrangements (other than fires) for cooking and / or heating requirements. LPG cookers may be used, provided that all safety regulations are followed.	CE	Ongoing	Site inspection	
◆ Construction vehicles must be fully serviced and maintained to ensure that unnecessary emissions do not occur.	CE/ECO	Ongoing	Proof of vehicle servicing required	
FAUNA AND FLORA	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / x
◆ Care must be taken to avoid the introduction of invasive plant species to the site and surrounding areas.	ECO	Ongoing	Site inspection	
◆ No trees / shrubs / groundcover may be removed or vegetation stripped without the prior permission of the ECO.	ECO	Before and during construction	Site inspection	
STORMWATER MANAGEMENT	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / x
◆ An earthen berm must be constructed along the upslope perimeter of the storage area, to divert excess surface runoff away from potentially contaminated surfaces within the storage area.	CE/ECO	During site establishment.	Site inspection	
◆ An earthen berm must also be constructed along the down slope perimeter of the storage area, to contain any contaminated runoff.	CE/ECO	During site establishment.	Site inspection	
◆ The subsoil stripped from the site can be used for creating the berm.	CE/ECO	During site establishment.	Site inspection	
VISUAL IMPACTS	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / x
◆ Storage facilities and other temporary structures on site should be located in such a	CE/ECO	During surveys, preliminary site	Site	

way that they have as little visual impact on neighbours as possible.		investigations and site establishment.	inspection	
◆ Special attention should be given to the screening of highly reflective materials on site.	ECO	During site establishment.	Site inspection	
SECURITY	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Security must be put in place prior to the commencement of construction so as not to compromise the safety and security of neighbouring residents.	ECO	During site establishment.	Site inspection	
COMMUNICATION WITH INTERESTED & AFFECTED PARTIES (I&AP's)	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Labourers for the construction phase must be sourced from nearby settlements to ensure that unemployed people are given priority for employment on the site.	CE/PM	Ongoing	-	
◆ Neighbours must be informed of the date of commencement of construction.	CE/PM	Prior to commencement of construction	Door to door visits / notice on site	
◆ Neighbours must be informed of the hours of the day during which construction activities will take place. This can either take place by way of leaflets placed in post boxes giving the CE's contact details or any other method approved by the ECO.	CE/PM	Prior to commencement of construction	Door to door visits / notice on site	
◆ Neighbours must be notified prior to any disturbances that may occur. For example, if the electricity or water supply is to be disturbed. This can either take place by way of leaflets placed in post boxes giving the CE's contact details or any other method approved by the ECO.	CE/PM	When necessary	Door to door visits / notice on site	

Additional Notes:

7 CONSTRUCTION

MANAGEMENT OF CONSTRUCTION ACTIVITIES AND WORKFORCE

Most environmental impacts of developments occur in the construction phase of the project. As a result the regulation of construction activities and the general conduct of the workforce is an essential component of this EMPr and must be carried out in conjunction with the ECO and PM.

SITE ACCESS	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ The CE is to ensure that all access roads are maintained in good working condition by attending to potholes, corrugations and storm water damage as soon as these develop.	CE	When necessary	Site inspection	
◆ If necessary, staff must clean surfaced roads adjacent to construction sites where materials have been spilt.	CE	When necessary	Site inspection	
MAINTENANCE OF THE CONSTRUCTION SITE SURFACES	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ To prevent stormwater damage, the increase in storm water run-off resulting from construction activities must be estimated and the drainage system assessed accordingly.	CE	Ongoing	Site inspection	
◆ Untreated run-off from the construction site must not be discharged into natural streams or adjacent properties.	CE	Ongoing	Site inspection	
◆ The CE must monitor and manage site drainage to avoid standing water and soil erosion.	CE/ECO	Ongoing	Site inspection	
WASTE MANAGEMENT	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
<i>General</i> ◆ The CE must identify disposal sites for the various categories of waste likely to be generated on site and must provide the ECO with documented proof of the type and volume of waste disposed of at these sites.	CE/ECO	Weekly	Site inspection and review of waste disposal documents	
◆ The general cleanliness of the site and compliance with the waste disposal requirements outlined will form part of the site inspections undertaken by the ECO.	ECO	Ongoing	Site inspection	
◆ Recycling and the provision of separate waste receptacles for different types of waste must be encouraged.	CE/ECO	Ongoing	Site inspection	

◆ Burning of waste on site is forbidden.	CE/ECO	Ongoing	Site inspection	
<i>Domestic Waste</i>				
◆ The construction site is to be cleared of litter on a daily basis.	CE	Ongoing	Site inspection	
◆ Domestic waste is to be stored in watertight, scavenger-proof and wind proof waste receptacles.	ECO	During site establishment	Site inspection	
◆ Domestic waste is to be cleared on a regular basis and transferred to a permitted domestic disposal site. No domestic waste is to be buried or burned on site.	CE	Ongoing	Site inspection	
<i>Scrap Metal and Hazardous Substance Containers</i>				
◆ Scrap metal (components, sheet metal, nails, tins) must be stored in a designated scrap metal container (e.g. a skip) located at the storage area.	ECO	Ongoing	Site inspection	
◆ All scrap metal is to be collected on the completion of a day's work and transferred to the container.	CE	Daily	Site inspection	
◆ When the scrap metal container is full, the scrap metal must either be collected by a scrap metal dealer or transferred to an appropriate disposal site.	ECO	Ongoing	Site inspection	
◆ Hazardous substance containers, contaminated substrates and materials used in the clean-up of spillages must be stored in a designated, impermeable container (e.g. a skip) located at the storage area if it is not possible to remove them from the site immediately.	CE /ECO	When necessary	Site inspection	
◆ The hazardous substance containers, contaminated soil, clean-up materials, etc. must be transferred to an appropriate disposal site on a regular basis.	ECO	Ongoing	Site inspection	
<i>Construction Debris</i>				
◆ On completion of construction, all leftover construction materials are to be removed from the working area and storage area (sand, gravel, cement, cement bags, timber).	CE/ECO	On completion of project	Site inspection	
◆ The materials must be disposed of at an appropriate site, sold / donated to the local inhabitants or taken to the CE's depot.	CE/ECO	On completion of project	Site inspection	
◆ Construction debris is not to be buried on site.	CE/ECO	Ongoing	Site inspection	
ABLUTION FACILITIES	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗

◆ An adequate number of self-contained chemical toilets must be available for the workforce (1 toilet per 20 workers). The CE must supply toilet paper at all toilets, and will be responsible for their maintenance and servicing.	CE	During site establishment / Daily	Site inspection	
◆ The ablution facilities should conform to any requirements stipulated by the Department of Health and the Local Authorities.	CE	Prior to moving onto site	Site inspection and review of DoH and Local Authority ablution stipulations	
◆ Toilets must be placed outside areas susceptible to standing or flowing water.	CE/ECO	During site establishment.	Site inspection	
◆ The ablution facilities must be maintained in a clean and orderly state and are to be regularly cleared to prevent odour and pest problems.	ECO	Weekly	Site inspection	
◆ The CE must ensure that no spillage occurs when chemical toilets are cleaned and cleared and that the contents are carefully stored and transported when removing off-site. All spills must be recorded in the Environmental Incident Record Book. (Refer to Appendix B).	CE/ECO	When necessary	Site inspection	
◆ No pit latrines are to be used.	CE /ECO	During site establishment	Site inspection	
◆ Performing ablutions outside toilet facilities is prohibited.	ECO	Weekly	Site inspection	
PROVISION OF WATER	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Potable water is to be sourced from an existing supply, and made available to all workers at various localities around the construction site.	CE	During site establishment / Ongoing	Site inspection	
◆ A dedicated source of water for dust suppression purposes must be determined during site establishment and be approved by the ECO.	CE/ECO	During site establishment	Site inspection	
CONCRETE MIXING	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ If small volumes of concrete are to be mixed (manually), mixing is to be undertaken on a hard surface covered in plastic sheeting so that concrete waste and runoff can be contained.	ECO	Ongoing	Site inspection	

<ul style="list-style-type: none"> ◆ If large volumes are generated, the following requirements must be met: <ul style="list-style-type: none"> – Mixing area must be underlain by an impermeable surface that is sufficient to trap spills. – Runoff from the concrete mixing area is to be contained and channelled into a sump. – All concrete waste is to be collected and removed from the site for disposal at an appropriate disposal site. 	ECO	Ongoing	Site inspection	
FAUNA AND FLORA	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
<ul style="list-style-type: none"> ◆ The following requirements must be met to ensure the protection of the vegetation: <ul style="list-style-type: none"> – All staff members are required to attend the ECO / CE environmental awareness training sessions; – Employees will be subject to fines, should they be caught removing or damaging indigenous flora on site or on surrounding properties. – No vegetation may be cleared without prior permission from the ECO and CE. – Care must be taken to avoid the introduction of alien plant species to the site and surrounding areas. (Particular attention must be paid to imported material). – Disturbance to birds, animals and reptiles and their habitats should be minimised wherever possible. 	ECO	During staff induction / Ongoing	Site inspection and liaison with CE	
<ul style="list-style-type: none"> ◆ Construction activities must be confined to the construction site only. The site must be demarcated and fenced and the CE and all labourers must remain within this area at all times. 	CE /ECO	Ongoing	Site inspection and liaison with CE	
REMOVAL OF VEGETATION	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
<ul style="list-style-type: none"> ◆ Site clearing activities should only be conducted immediately prior to construction, to reduce the amount of time topsoil is exposed, and thus the potential for erosion. 	CE /ECO	Ongoing	Site inspection	
WEED CONTROL	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
<ul style="list-style-type: none"> ◆ The CE is to control and eradicate the spread of alien weeds during the project. 	CE/ECO	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ Alien plants that have been removed must be discarded at an appropriate refuse site. Should alien vegetation have seeds, it should be transferred to the storage 	CE /ECO	When required	Site inspection	

area where it can be burned in a controlled manner.				
WATER QUALITY	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
<ul style="list-style-type: none"> ◆ The CE is to prevent the contamination of water by materials used during construction and ensure the following: <ul style="list-style-type: none"> – Implement measures to prevent seepage of liquid materials into ground where it could contaminate groundwater; – Ensure prompt cleaning up of accidental spillages (Section 20 of the National Water Act (36 of 1998)). 	CE/ECO	Weekly	Site inspection	
<ul style="list-style-type: none"> ◆ Ensure the CLAD geomembrane lining meets the quality requirements of SANS 10 409 and ISO 9001:2000. 	CE/PM	Before lining the CLAD	CE in liaison with Gundle Geo Synthetic Linings (Pty) Ltd	
<ul style="list-style-type: none"> ◆ The CE is to prevent the contamination of hydrological features by diesel, grease, oil, etc. by ensuring that: <ul style="list-style-type: none"> – The machinery / equipment is maintained in a good operating condition; – Specially designated areas for vehicle maintenance are created; – Accidental spillages are cleaned up promptly and all contaminated material disposed appropriately. 	ECO	Weekly	Site inspection	
STORMWATER MANAGEMENT	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
<ul style="list-style-type: none"> ◆ During construction, unconfined surface flow must be contained to avoid soil erosion. 	CE /ECO	As surfaces become exposed	Site inspection	
<ul style="list-style-type: none"> ◆ All earthworks must be carried out in accordance with the guidelines stipulated in SABS 1200. 	CE /ECO	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ To reduce the possibility of soil erosion, the resurfacing of newly cleared vegetated areas must take place immediately after vegetation has been removed. 	CE /ECO	Ongoing	Site inspection	
<ul style="list-style-type: none"> ◆ Suitable erosion control methods must be implemented in areas sensitive to erosion. These measures could include: <ul style="list-style-type: none"> – The suitable use of sand bags or hessian sheets. 	CE	Ongoing	Site inspection	

<ul style="list-style-type: none"> – The prompt rehabilitation of exposed soil areas within indigenous vegetation to ensure that soil is protected from the elements. – The removal of vegetation, only as it becomes necessary for work to proceed. – Prevent the unnecessary removal of vegetation especially on steep slopes. – All the necessary precautions in terms of design and construction of earthworks, cuts and fills must be taken. 				
◆ Erosion control structures must be installed to all stormwater outlets from internal stormwater pipes (including runoff from roads and buildings).	CE	Ongoing	Site inspection	
◆ There is to be a periodic inspection of the sites drainage system to ensure that the flow of surface water is not obstructed.	CE /ECO	Monthly	Site inspection	
SOIL EROSION	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Once the site has been cleared of vegetation, the top layer of soil (200mm) should be removed and stockpiled in a designated area.	CE /ECO	Ongoing	Site inspection	
◆ The entire site must not be cleared of vegetation before construction commences, ensuring that exposed areas are kept to a minimum, wherever possible.	CE/ECO	Ongoing	Site inspection	
◆ Top-soiling and re-vegetation shall commence immediately after the completion of a construction activity.	CE/ECO	On completion of each phase	Site inspection	
◆ Stormwater management and wind screening must be undertaken to prevent soil loss from the site.	CE /ECO	Ongoing	Site inspection	
◆ Side tipping of spoil and excavated materials shall not be permitted – all spoil material shall be deposited of as directed by the ECO.	CE/ECO	Ongoing	Site inspection	
SOIL HANDLING	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Soil must not be handled when it is wet as this will result in unnecessary compaction.	CE	When necessary	Site inspection	
◆ Repeated handling of soil must be avoided as these results in compaction and the loss of soil structure.	CE/ECO	Ongoing	Site inspection	
◆ In order to minimise the risk of spillage and loss through wind erosion, trucks transporting soil must not be overloaded when conveying soil to and from the site.	CE	Ongoing	Site inspection	
◆ Soil being transported long distances must be covered with a tarpaulin.	CE	Ongoing	Site inspection	

STOCKPILE MANAGEMENT	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
<i>General Guidelines</i>				
◆ Stripped soil is to be stockpiled so that it can be used in the rehabilitation process.	CE /ECO	Ongoing	Site inspection	
◆ Soil that is to be stockpiled for an extended period must be stored: – In a sheltered site where it will not be exposed to the effects of wind erosion; – Outside the working area where it will not be disturbed or contaminated.	ECO	When necessary	Site inspection	
◆ Topsoil (top 200 mm) is not to be mixed with subsoil.	ECO	When necessary	Site inspection	
◆ Soil is not to be stockpiled against tree trunks as this will encourage ant infestations.	ECO	Locate as directed by the ECO	Site inspection	
◆ Soil is to be stockpiled in small manageable piles (not to exceed 2m).	CE	Ongoing	Site inspection	
<i>Stockpile Maintenance</i>				
◆ Stockpiles are to be protected from wind and water erosion: ◆ Short-term stockpiling (less than 3 weeks) - erosion control measures will not need to be implemented; however, limitations on the area to be cleared will apply; ◆ Medium-term stockpiling (more than 3 weeks) - stockpiles must be covered with biomatting.	ECO	Weekly	Site inspection	
◆ The colonisation of stockpiles by invasive plants must be controlled by removing the plants when they germinate. The purpose of this is to reduce the risk of developing a seedbank of invasive species within the stockpiled soil.	ECO	Monthly	Site inspection	
SPOIL USE, HANDLING AND DISPOSAL	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Excavation material generated by the construction of the CLAD must first be used for: – Creation of rock gabions where required for slope protection and erosion control; – Rehabilitation of cuts; – Backfill for excavations.	CE/ECO	Ongoing	Site inspection	
◆ Should the volume of spoil to be disposed of be too large or if the density of spoil stockpiles becomes too high, the spoil will have to be removed and disposed of at a registered landfill site.	CE	When necessary	Site inspection	

DUST / AIR POLLUTION	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Exposed surfaces must be re-vegetated as soon as possible.	CE/ECO	Ongoing	Site inspection	
◆ Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present.	CE	Ongoing	Site inspection	
◆ Appropriate dust suppression measures must be used when dust generation is unavoidable (dampening).	CE	Ongoing	Site inspection	
◆ No fires are allowed on site.	CE	Ongoing	Site inspection	
◆ Vehicles and machinery are to be kept in good working order and to meet manufacturers specifications for safety, fuel consumption etc.	CE/ECO	Ongoing	Site inspection	
◆ Should excessive emissions be observed, the CE is to have the equipment inspected as soon as possible.	CE	As directed by the ECO	Site inspection	
◆ All vehicles should comply with speed limits on the access roads. Vehicles should be properly maintained and regularly serviced to ensure that exhaust emissions are controlled.	CE	As directed by the CE	Site inspection	
◆ The construction site should be periodically dampened to reduce the impact of dust. Soil stockpiles should be covered or grassed, if they are likely to be present on site for periods longer than 3 months.	CE	Ongoing	Site inspection	
HAZARDOUS SUBSTANCES	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ The handling and storage of hazardous materials must be in accordance with the MSDS and must be restricted to the storage area as the appropriate pollution control measures will need to be in place. If additional areas / sites are required for the storage or handling of hazardous substances, they must be assessed and approved by the ECO who will then instruct the CE to implement the appropriate controls.	CE /ECO	Before construction commences / as additional hazardous are required	Site inspection	
◆ No fuels are to be stored on the site.	CE /ECO	Ongoing	Site inspection	
<i>Inventory of Substances</i>				
◆ The CE must compile an inventory of all hazardous substances to be used and stored on the site, and must ensure that they know the effects of these substances on their staff and the environment. A copy of this inventory must be supplied to the	CE /ECO	Before construction commences and as additional hazardous are required	Review of inventory	

CE and ECO.				
<i>Handling and Storage</i>				
◆ The CE must ensure that the quantities of chemicals stored on site are appropriate for his / her requirements, and must also ensure that they are appropriately stored and handled so as to minimise the risk of spills.	ECO	Ongoing	Site inspection	
◆ All chemicals must be confined to specific and secured areas that have to be approved by the ECO.	ECO	During site establishment / Ongoing	Site inspection	
◆ Chemicals must be stored in a bunded area with an impermeable base, which is capable of containing 110% of the bunded material. An impermeable surface could be created by i) placing a layer of clay beneath plastic sheeting ii) placing soil on top of plastic sheeting. When the impermeable surface is no longer required, the plastic sheet along with the contaminated soil must be disposed of off-site at a registered landfill.	ECO	Ongoing	Site inspection	
<i>Spills of Hazardous Substances</i>				
◆ The accidental or negligent spillage of any fuels or potentially hazardous substances must be cleaned up immediately using the most appropriate methodologies, equipment and materials. Refer to Appendix D for the Spill Contingency Plan.	CE	When necessary	Site inspection	
◆ The CE must ensure that the necessary materials, equipment and chemicals are available on the site to deal with spills of any of the hazardous materials present (e.g. Drizit).	CE /ECO	During site establishment	Site inspection	
◆ Any contaminated soil or water must be removed and stored in a skip until it can be disposed of at an appropriate disposal site.	ECO	When necessary	Site inspection	
<i>Recording of Incidents</i>				
◆ The CE must provide an Environmental Incident Record Book on site to record the details of any environmental incidents (date, time, cause, action taken). This book will be regularly checked by the ECO who will also cross reference the entries with observations made during site visits. Refer to Appendix B.	ECO	Prior to moving onto site / Ongoing	Review of Incident Record Book	
CONTAMINATED WATER AND SOILS	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / x
◆ All soil that is contaminated must be removed and stored in a skip until it can be disposed of at an appropriate disposal site.	CE /C/ECO	Ongoing	Site inspection	

◆ All wastewater and polluted runoff from contaminated areas must be channelled into an appropriately sized, designed and located collection sump.	CE/ECO	During site establishment / Ongoing	Site inspection	
◆ The collection sumps must be properly managed and regularly cleared to prevent overflows and must be disposed of at an appropriate disposal site.	CE /C/ECO	Ongoing	Site inspection	
EQUIPMENT / MACHINERY	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ The CE must store all equipment that may leak on an impermeable surface, with watertight drip trays to catch any pollutants.	ECO	Ongoing	Site inspection	
◆ The drip trays must be cleaned regularly, and must not be allowed to overflow.	CE /ECO	Ongoing	Site inspection	
◆ Chemicals collected in the drip trays must be collected and disposed of in an appropriate manner (MSDS).	CE /ECO	Ongoing	Site inspection	
PERSONAL SAFETY	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
<i>Hard Hats</i> ◆ The following personnel are required to wear hard hats: – All persons within 10m of any situation where any form of lifting or hoisting equipment is being undertaken; – Any personnel working in any other situation where possibility of head injury is present.	CE /ECO	Ongoing	Site inspection and review of PPE	
<i>Protective Gloves</i> ◆ Protective gloves are to be worn by all persons engaging in the following: – Handling of heavy or sharp edged materials; – Welding or gas cutting activities; – Handling of corrosive chemicals.	CE /ECO	Ongoing	Site inspection and review of PPE	
<i>Safety Footwear</i> ◆ All persons entering the active working area must wear approved safety boots.	CE /ECO	Ongoing	Site inspection and review of PPE	

<p><i>Safety Goggles</i></p> <ul style="list-style-type: none"> ◆ The following persons must wear safety goggles at all times: <ul style="list-style-type: none"> – Persons operating equipment under dusty conditions; – Persons engaged in cutting or welding activities; – Persons engaged in grinding activities; – Persons handling hazardous chemicals. 	CE /ECO	Ongoing	Site inspection and review of PPE	
VISUAL IMPACTS	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ The site is to be kept clean at all times to minimise the visual impacts of the site.	ECO	Weekly	Site inspection	
◆ Special attention should be given to the screening of highly reflective materials on site.	ECO	During site establishment	Site inspection	
NOISE IMPACTS	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Construction vehicles, building CE and labourers must be limited to working hours between 7am and 5pm Monday to Friday, and between 7am and 1pm on Saturdays. No working is permitted on Sundays. Construction on weekends and public holidays should not be permitted in order to minimise the impact on surrounding residents.	CE /ECO	Prior to moving onto site	Site inspection	
◆ Machinery and equipment must be maintained and regularly serviced to ensure that unnecessary noise is prevented.	CE /ECO	Prior to moving onto site	Site inspection	
◆ Workers on site must not create unnecessary noise such as hooting or shouting.	CE /ECO	Ongoing	Site inspection	
◆ All construction labourers must remain within the boundaries of the construction site at all times. In order to ensure this, it is recommended that the entire property be fenced at the start of the construction phase, to prevent labourers trespassing onto neighbouring properties.	CE /ECO	Ongoing	Site inspection	
◆ Equipment fitted with noise reduction facilities will be used as per operating instructions and maintained properly during operations.	CE/	Ongoing	Site inspection	
HERITAGE IMPACTS	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Although the site is not likely to feature any heritage impacts, in the event that	CE/ECO	Ongoing	Site	

archaeological or heritage material being uncovered during construction, all construction must be immediately stopped and the South African Heritage Resource Association (SAHRA) must be contacted immediately.			inspection	
STAFF CONDUCT	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ The CE must monitor the performance of construction workers to ensure that the points relayed during their induction have been properly understood and are being followed. If necessary the ECO and / or a translator is to be called onto site to further explain aspects of environmental or social behaviour that are unclear.	CE /ECO	Ongoing	Site inspection and liaison with CE	
◆ A general regard for the social and ecological well being of the site and surrounding areas is expected of the site staff. Workers need to be made aware of the following rules: <ul style="list-style-type: none"> – No alcohol / drugs to be allowed on site; – No firearms allowed on site or in vehicles transporting staff to / from the site; – Prevent excessive noise; – Construction staff are to make use of the facilities provided for them, as apposed to <i>ad hoc</i> alternatives; – Trespassing on private / commercial properties adjoining the site is forbidden; and – Driving under the influence of alcohol is prohibited. 	ECO	Ongoing	Site inspection and liaison with labour	
DAMAGE TO PROPERTY AND STRUCTURES	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Damage to structures and fences on private property must be avoided as far as possible.	CE	Ongoing	Site inspection	
◆ Should damage to the aforementioned occur, the CE will be responsible for repairing the damage caused or compensating the property owner accordingly.	CE	Ongoing	-	
◆ Any fencing removed to enable construction to proceed must be replaced on completion of work in that area.	CE	Ongoing	Site inspection	
DISRUPTION OF INFRASTRUCTURE AND SERVICES	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Should the construction staff be approached by members of the public or other stakeholders, they are to assist them in locating the CE.	CE	Ongoing	-	
◆ The CE is to inform surrounding residents and businesses of disruptive activities at least 24 hours in advance. This can either take place by way of leaflets placed in	CE /ECO	At least 24 hours before the activity is	Liaison with CE and	

post boxes giving the CEs contact details or any other method approved by the ECO.		to take place	neighbours	
COMMUNICATION WITH INTERESTED & AFFECTED PARTIES (I&AP's)	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ The CE and ECO are responsible for ongoing communication with all I&AP's.	CE/PM	Ongoing	Liaison with CE and ECO	
◆ A complaints register is to be located at the site office. The CE must account for any missing pages. This register is to be tabled during regular site meetings. (Refer to Appendix A).	ECO/PM	Monthly	Site inspection and review of Complaints Register	
◆ Queries and complaints are to be handled by: – Documenting details of such communications; – Submitting these for inclusion into the complaints register; – Bringing issues to the immediate attention of the CE; and – Taking remedial action as per the CE and / or ECO's instructions.	ECO/PM	Ongoing		
◆ Selected staff are to be made available for formal consultation with I&AP's in order to: – Explain the construction process; and – To answer any questions.	ECO/PM	Ongoing	Liaison with ECO and CE	
FIRE PROTECTION	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ A sufficient number of fire hydrants for the facility must be installed. The water pressure within the hydrants must be of suitable pressure to be used for fire fighting purposes.	CE /ECO	Ongoing	Site inspection	
◆ All buildings must be equipped with adequate emergency fire systems (fire safety regulations and insurance requirements must be consulted in determining this).	CE /ECO	Ongoing	Site inspection	
◆ A dedicated on-site water storage facility for emergency and freighting must be established.	CE /ECO	Ongoing	Site inspection	

Additional Notes:

8 POST-CONSTRUCTION / REHABILITATION AND DECOMMISSIONING

POST CONSTRUCTION ACTIVITIES

Site rehabilitation is an essential component of this EMPr and must be carried out in conjunction with the ECO. The guideline is to be used as the basic structure for the site rehabilitation; the specific details must be decided by the CE in conjunction with the ECO. This applies most specifically to the soil replacement and re-vegetation components.

The requirements for the control of soil, water, dust and noise pollution stipulated in this EMPr still applies during the site rehabilitation phase of the project. Similarly, the requirements for soil management, erosion control, alien vegetation removal and vegetation and fauna protection also apply.

INFRASTRUCTURE	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Disassemble all infrastructure units and remove components from the working and storage areas. This will include temporary office and storage structures and containers, water supply pipelines, water storage containers, waste storage containers, power supply, etc.	CE /ECO	On completion of construction	Site inspection	
◆ Drain all portable chemical toilets, with no spillage of the contents. Transfer the contents to an appropriate disposal site.	CE	On completion of construction	Site inspection	
◆ Drain all wastewater and sewage associated with the temporary ablution facilities and transfer the waste to an appropriate sewage treatment works.	CE	On completion of construction	Site inspection	
◆ Disassemble all construction equipment and transfer the waste components to a disposal site or the CE's base.	CE	On completion of construction	Site inspection	
POLLUTION CONTROL STRUCTURES	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Excavate all areas of contaminated substrate, transfer the contaminated substrate to an appropriate disposal site and treat the affected areas with appropriate ameliorants.	CE	On completion of the project	Site inspection	
◆ Remove all plastic linings used for pollution control and transfer to an appropriate disposal site.	CE	On completion of the project	Site inspection	
◆ Break up all concrete structures that have been created and remove concrete waste to an appropriate disposal site.	CE	On completion of the project	Site inspection	
◆ Drain all collection sumps and dispose of the contaminated liquid and solids at an approved disposal site.	CE/ECO	On completion of construction	Site inspection	
WASTE	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗

◆ Remove all leftover construction materials from the storage area and construction site and either sell, auction, donate to the local community or transfer to the CE's base.	CE	On completion of the project	Site inspection	
◆ Remove all construction debris, litter and domestic waste from the construction site and transfer to an appropriate disposal site. Remove all waste receptacles and either donate to the local community, auction, or transfer to CE's base.	CE	On completion of the project	Site inspection	
◆ Do not burn or bury any waste at the construction site – all waste is to be transferred to a permitted disposal site.	CE /ECO	On completion of the project	-	
ALIEN VEGETATION	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / x
◆ Existing and newly established alien vegetation must be removed from the entire property and replaced, where necessary, with suitable indigenous / endemic plant species. During this process, it is imperative that indigenous vegetation is not removed or disturbed.	CE /ECO	Ongoing	Site inspection	
◆ Only indigenous species should be used for landscaping. No exotic plants are to be introduced.	CE /ECO	Ongoing	Site inspection	
REVEGETATION	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / x
◆ All areas of bare soil must be re-vegetated and rehabilitated.	CE/ECO	On completion of construction	Site inspection	
◆ It is important that the re-vegetation activities be planned in advance to ensure that seed and plant stockists are able to supply the required volume when required.	CE	On completion of construction	Site inspection	
◆ Only indigenous and preferably endemic plant species will be permitted on site.	ECO	During rehabilitation phase.	Site inspection	
◆ All re-vegetated areas will need to be watered to ensure plant growth and development.	CE/ECO	Ongoing.	Site inspection	

Additional Notes:

9 OPERATION

OPERATIONAL ACTIVITIES

At the commencement of the operational phase, the ECO must audit the facility using the following EMPr. It is at the GDARD's discretion as to the frequency of these assessments. The following EMPr stipulations should be adhered to at all times during the operational phase.

HAZARDOUS SUBSTANCES	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
<ul style="list-style-type: none"> The handling and storage of hazardous materials must be in accordance with the MSDS and must be restricted to the storage area as the appropriate pollution control measures will need to be in place. If additional areas / sites are required for the storage or handling of hazardous substances, they must be assessed and approved by the ECO. 	PM/ECO	Ongoing	Site inspection	
<ul style="list-style-type: none"> No fuels are to be stored on the site. 	PM	Ongoing	Site inspection	
<i>Inventory of Substances</i>				
<ul style="list-style-type: none"> The PM must compile an inventory of all hazardous substances to be used and stored on the site, and must ensure that they know the effects of these substances on their staff and the environment. A copy of this inventory must be supplied to the ECO. 	PM/ECO	Ongoing	Review of inventory	
<ul style="list-style-type: none"> The PM must ensure that the necessary materials, equipment and chemicals are available on the site to deal with potential biogas leakages. 	PM/ECO	Ongoing	Site inspection	
<i>Spills</i>				
<ul style="list-style-type: none"> The PM must ensure that the necessary materials, equipment and chemicals are available on the site to deal with accidental spills. 	PM/ECO	Ongoing	Site inspection	
<ul style="list-style-type: none"> The PM must devise a procedure for dealing with accidental spills, which has to be approved by the ECO. The procedure must distinguish between those spills that can be cleaned up by the PO and those that will require specialist input. The name and contact numbers of various clean up companies must be posted and visible on site. This procedure must also include a provision to notify the ECO of any spills or overflow. 	PM/ECO	Commencement of operation	Review of procedures and posters	

◆ Any contaminated soil or water must be removed and stored in a skip until it can be disposed of at an appropriate disposal site.	PM/ECO	When necessary	Site inspection	
<i>Recording of Incidents</i>				
◆ The PM must provide an Environmental Incident Record Book on site to record the details of any environmental incidents (date, time, cause, action taken). This book will be regularly checked by the ECO who will also cross reference the entries with observations made during site visits.	PM/ECO	Prior to moving onto site / Ongoing	Review of Incident Record Book	
FLORA AND FAUNA	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Employees will be subject to fines, should they be caught removing or damaging flora on site or on surrounding property. ◆ Disturbance of the environment (both plants and animals) must be kept to a minimum.	PO/ECO	Ongoing	Site inspection	
◆ Only indigenous species are to be allowed to be planted on the site.	PO/ECO	Ongoing	Site inspection	
ALIEN VEGETATION	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ The establishment of invasive alien plant species during the operational phase of the development must be prevented (i.e. monitored every 3 to 4 months).	PO /ECO	Ongoing	Site inspection	
◆ Only indigenous species should be used for landscaping. No exotic plants are to be introduced.	PO /ECO	Ongoing	Site inspection	
TRAFFIC AND ACCESS	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Access areas must be maintained in good working condition (i.e. potholes must be repaired as soon as they develop).	PO/ECO	Ongoing	Site inspection	
◆ Vehicles must be restricted to demarcated access areas, routes and turning areas.	PO/ECO	Ongoing	Site inspection	
NOISE	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ The operational workforce must be made aware of the need to keep noise to a	PM/ECO	Ongoing	Site	

minimum.			inspection	
◆ All equipment, vehicles and machinery must be properly maintained to minimise unnecessary noise.	PM/ECO	Ongoing	Site inspection	
VISUAL IMPACTS	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ The site is to be kept clean at all times to minimise the visual impacts of the site.	PO/ECO	Ongoing	Site inspection	
FIRE MANAGEMENT	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ The PO must be familiar with the protocol in the event of a fire occurring on site. Personnel must know who to inform about a fire and where to group.	PM/ECO	Ongoing	Site inspection	
◆ There must be appropriate and sufficient fire extinguishing equipment throughout the facility.	PM/ECO	Ongoing	Site inspection	
HEALTH AND SAFETY	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ A First Aid Box must be present on site, and its contents must be in compliance with the Occupational Health and Safety Act (Act No 85 of 1993). The contacts of a qualified First Aid Officer must be displayed on site in case of emergency.	PM/ECO	Ongoing	Site inspection	
◆ All MSDS must be available (on site) for all potentially toxic or hazardous materials used on site.	PM/ECO	Ongoing	Site inspection	
◆ All handling of potentially toxic or hazardous material must be undertaken in accordance with the Materials Safety Data Sheets (MSDS).	PM/ECO	Ongoing	Site inspection	
SOCIO-ECONOMIC	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ A Complaints Register must be available at the site office. The pages must be numbered (any missing pages must be accounted for), and the book must have a carbon copy of each page. ◆ I&APs must be made aware of the availability of the complaints register. ◆ Complaints must be handled in the following manner:	PM /ECO	Ongoing	Register inspection	

<ul style="list-style-type: none"> - All communication associated with a complaint must be documented; - The complaint must be brought to the immediate attention of the PO. - Immediate action must be taken as per the PO's instructions. 				
LOGGING OF INCIDENTS	RESPONSIBILITY	OCCURRENCE	METHOD	✓ / ✗
◆ Any incidents associated with the facility must be recorded in The Environmental Incident Record Book.	PO/ECO	Ongoing.	Register inspection	
◆ An Environmental Incident Record Book must be available on site to record the details of any environmental incidents (date, time, location, cause, nature of incident, action taken, people involved).	PO/ECO	Ongoing.	Register inspection	
◆ All incidents must be recorded accurately, regardless of their extent	PO/ECO	Ongoing.	Register inspection	
◆ The PM must frequently check the Incident Report Book, and any significant incidents must be reported to the relevant authority.	PM/ECO	Ongoing.	Register inspection	
◆ Entries in the Environmental Incident Record Book must be regularly reviewed by the PM, in order to identify and thus address any recurring incidents or incident hotspots.	PM/ECO	Ongoing.	Register inspection	

Additional Notes:

10 CONCLUSION

In terms of NEMA, everyone is required to take reasonable measures to ensure that they do not pollute the environment. Reasonable measures include informing and educating employees about the environmental risks of their work and training them to operate in an environmentally responsible manner. Furthermore, in terms of NEMA, the cost to repair any environmental damage shall be borne by the person responsible for the damage.

If the above-mentioned management recommendations are adopted it is anticipated that most of the negative environmental impacts associated with the pre-construction, construction, post-construction and rehabilitation, and operational phases of the development can be mitigated against. An appointed ECO will need to regularly monitor the site to ensure that the required environmental controls are in place and working effectively.

11 APPENDICES

APPENDIX C: MATERIAL DATA SAFETY SHEETS (MSDSS)

To be appended by the Contractor.

APPENDIX D: SPILL CONTINGENCY PLAN

Name, address and job title of the owner or person in charge, management or control.

NAME.....

ADDRESS.....

JOB TITLE.....

Name, job title and 24-hour telephone number for the persons responsible for activating the spill contingency plan.

NAME.....

JOB TITLE.....

24-HOUR TELEPHONE NUMBER.....

A description of the facility including the location, size and storage capacity.

DESCRIPTION OF FACILITY.....

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A description of the type and amount of contaminants normally stored at the location.

DESCRIPTION OF CONTAMINANTS.....

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Site map of the location. This map is intended to illustrate the facilities relationship to other areas that may be affected by a spill.

The steps to be taken to report, contain, clean-up and dispose of contaminants in the case of a spill.

Reporting is the notification of all parties involved. This can include internal as well as external reporting procedures. A description of a public reporting procedure used to alert anyone who may be affected by the spill is required.

REPORTING

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Clean-up is the removal of the contaminant from the environment. This should consider the possible scenarios or spill incidents that could occur at the facility including a worst case scenario.

CLEAN-UP

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Disposal is the treatment of the contaminant such that it is no longer a threat to the environment. Contingency plans must contain appropriate disposal procedures for the materials stored at the facility.

DISPOSAL

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The means by which the spill contingency plan is activated (i.e. procedures to activate appropriate response equipment and personnel).

ACTIVATION OF SPILL CONTINGENCY PLAN

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A description of the training provided to employees to respond to a spill. A sound training program is necessary when dealing with an emergency situation. This program should include knowledge and the use of any response equipment.

DESCRIPTION OF TRAINING PROGRAMME

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An inventory of and the location of response and clean-up equipment available to implement the spill contingency plan.

INVENTORY OF AND LOCATION OF RESPONSE AND CLEAN-UP EQUIPMENT

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The date the contingency plan was prepared.

DATE.....

A listing of local contractors or clean-up specialists who may be called upon to assist in responding to spills.

SPILL ASSISTANCE

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A listing of emergency numbers such as fire, ambulance and police.

FIRE DEPARTMENT.....

AMBULANCE.....

POLICE.....

APPENDIX E: MATERIALS SOURCE STATEMENT

To be appended by the Contractor.