



DRAFT ENVIRONMENTAL MANAGEMENT PLAN (EMP)
For the
PROPOSED CONSTRUCTION OF AN ESKOM GENERAL LANDFILL
AND A HAZARDOUS WASTE STORAGE FACILITY IN LEPHALALE,
LIMPOPO PROVINCE

May 2009

DEAT Reference Number: 12/12/20/1399

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1. INTRODUCTION AND BACKGROUND

Envirovolution Consulting (Pty) Ltd (Envirovolution Consulting) has been appointed by Eskom Generation Environmental Management (GEM) Division as an independent environmental consultancy to undertake the Environmental Impact Assessment (EIA) for the proposed construction of a general landfill and temporary hazardous waste storage facility in Lephalale, Limpopo Province.

Eskom is currently constructing a 6 x 800MW coal-fired power station about 15 km from the town of Lephalale. This station is known as the Medupi Power Station and is in close proximity of the existing Matimba Power Station and the proposed Coal 3 and 4 Power Stations in the Waterberg.

Per the legal requirements, all waste materials from Medupi's construction must be disposed of in an appropriately licensed waste dump site. There is currently a waste site at the town of Lephalale, but this site is not licensed and can thus not be used for the disposal of the Medupi's waste. As a result Medupi's waste has to be transported to the Gauteng region to be disposed of at a licensed site. Due to the volume of waste produced, this is not a most cost-effective nor is it a sustainable solution.

As part of an environmental impact assessment, risks to the environment are identified. These possible risks should be taken into account during the planning phase of the development. As such Environmental Management Plan (EMP) is developed. An EMP is a requirement for any proposed project as per the NEMA EIA Regulations, 2006. The implementation of this EMP, through the appointed contractor, remains the responsibility of the applicant, Eskom.

In their approval of the Scoping Report and Plan of Study for EIA, the DEAT did not specify a Waste Management Plan (WMP) for this EIA. Envirovolution Consulting however has considered the compilation of a WMP. This will be a document in addition to the EMP to specifically address the management of general and hazardous wastes during both the construction and operational phases.

The purpose of the WMP is also to provide guidance to the project team with regard to the management of waste generated on the construction site during the construction of the landfill and temporary storage facility. The WMP will further assist in the prevention of pollution that may arise from the general and the hazardous waste that could be generated on the construction site.

Appended to this EMP is an Operational plan (**Appendix 1a**) and Alien Plant Eradication Programme (**Appendix 1b**) that must be considered and implemented where applicable during construction and operational phases of the proposed development. These documents must be read in conjunction with this EMP and the specifications therein be implemented.

In general, the purpose of this EMP is to formulate mitigatory measures that should be made binding to all contractors during construction of the proposed development, as well as measures that should be implemented during the operational phase.

The EMP is thus required to protect the natural, social and socio-economic environment during construction. This EMP is intended for the management of the impacts of construction of the landfill and the waste storage facility and operation thereof, rehabilitation and revegetation of affected areas only. This EMP is, therefore, a stand-alone document, which must be used on site during each phase of the development (planning, construction and operational phases).

This document should be flexible so as to allow the contractor and Eskom to conform to the management commitments without being prescriptive. The management commitments prove that the anticipated risks on the environment will be minimised if they are adhered to consistently. The onus set out in the EMP rests with Eskom, main Contractor and subcontractors, which promotes responsibility and commitment. Any parties responsible for transgression of the underlying management measures outlined in this document will be held responsible of non-compliances and will be dealt with accordingly.

The EMP has been developed with due reference to the following:

- Department of Environment Affairs and Tourism, (May 2009). **Scoping and PoS for EIA Approval letter for the Proposed Construction of Eskom General Landfill and Hazardous Waste Storage Facility**, DEAT Reference No: 12/12/20/1399
- Department of Water Affairs and Forestry, Republic of South Africa, Bredenhann L, Fourie H.O. (Dr). (1998) **Waste Management Series, Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste**, Second Edition.
- Department of Water Affairs and Forestry, Republic of South Africa, Bredenhann L., Ball J.M. (1998). **Waste Management Series, Minimum Requirements for Waste Disposal by Landfill**, Second Edition.
- Envirovolution Consulting (Pty) Ltd. (March 2009). **Environmental Scoping Report for the Proposed Construction of an Eskom General Landfill and Hazardous Waste Storage Facility**, DEAT Reference No: 12/12/20/1399.

This document has also been based on the findings of the on site assessment undertaken by the Envirolution Team and the Specialist Investigation team between November 2008 – March 2009 for this project.

All the Environmental specifications and the procedures discussed in this document were also developed in accordance with the relevant legislation applicable to the proposed development.

2. PHASES OF THE PROJECT

The process which was followed in compiling this EMP is in compliance with NEMA EIA Regulations 2006, and applies the principles of Integrated Environmental Management (IEM). The purpose of this EMP is to formulate mitigation measures that are made binding on all contractors during the construction phase as well as during the operational phase.

The point of departure for this EMP is to take a pro-active route by addressing potential problems before they occur. This should limit corrective measures needed during the construction and operational phases of the development. Additional mitigation will be included throughout the project's various phases, as required and if necessary.

This EMP deals with the following phases as detailed below:

2.1. The Planning Phase

This EMP offers an ideal opportunity to incorporate pro-active environmental management measures with the goal of attaining sustainable development. While there is still the chance of accidental impacts taking place; however, through the incorporation of contingency plans (e.g. this EMP) during the planning phase, the necessary corrective action can be taken to further limit potential impacts.

2.2. The Construction Phase

The bulk of the impacts during this phase will have immediate effects (e.g. noise, dust and water pollution). If the site is monitored on a continual basis during the construction phase, it is possible to identify these impacts as they occur. These impacts can then be mitigated through the contingency plans identified in the planning phase, together with a commitment to sound environmental management from Eskom.

2.3. The Operational Phase

By taking pro-active measures during the planning and construction phases, potential environmental impacts emanating during the operational phase will be minimised. This, in

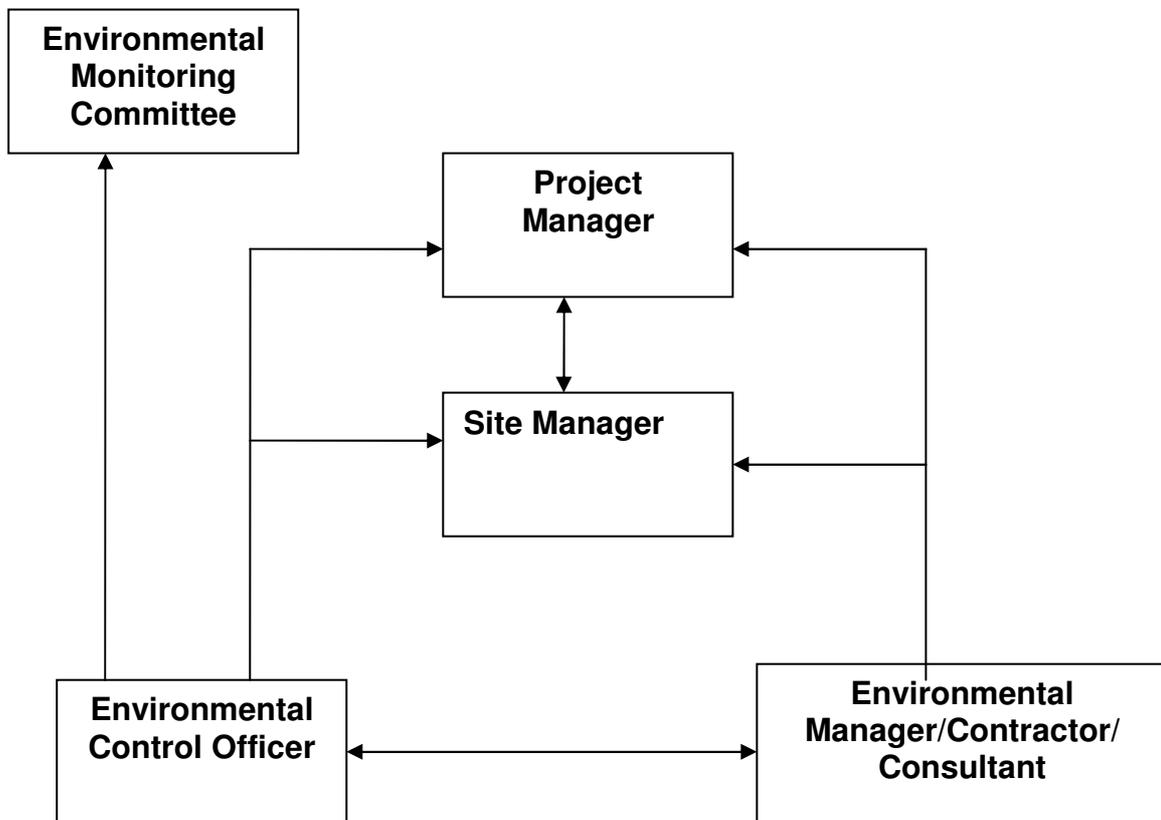
turn, will minimise the risk and reduce the monitoring effort, but it does not make monitoring obsolete.

3. Management Procedures

3.1. Organisational Structure and Responsibility

3.1.1 Functions and Responsibilities for the Construction Phase

Formal responsibilities are necessary to ensure that key procedures are executed. Specific responsibilities of the Eskom Project manager, Site Manager, Environmental Manager and Environmental Control Officer for the construction phase of this project are as detailed below.



The Project Manager will:

- Ensure that Eskom and the Contractor are aware of all specifications, legal constraints and Eskom standards and procedures pertaining to the project specifically with regards to the environment.
- Ensure that all stipulations within the EMP are communicated and adhered to by Eskom and its Contractor(s).
- Monitor the implementation of the EMP throughout the project by means of site inspections and meetings. This will be documented as part of the site meeting minutes.
- Be fully conversant with the Environmental Impact Assessment for the project, the conditions of the RoD, and all relevant environmental legislation

The Site Manager: Matimba Power Station:

- Be fully conversant with the Environmental Impact Assessment.
- Be fully conversant with the conditions of the RoD.

- Be fully conversant with the Environmental Management Plan.
- Be fully conversant with all relevant environmental legislation and Eskom environmental policies and procedures, and ensure compliance with these.
- Have overall responsibility for the implementation of the EMP.
- Ensure that audits are conducted to ensure compliance to the EMP.
- Liaise with the Project Manager or his delegate, the Environmental Control Officer and others on matters concerning the environment.
- Prevent actions that will harm or may cause harm to the environment, and take steps to prevent pollution on the site.
- Confine activities to the demarcated construction site.

The Environmental Manager will:

- Ensure daily inspections to determine compliance with RoD and CEMP, using checklists
- Submit monthly audit update report to Eskom, External Auditor & Project Management, showing progress with closure of findings
- Facilitate reporting, recording, investigation and follow-up of environmental related incidents as per Risk Management process
- Facilitate and integrate relevant training programs for personnel covering all activities impacting on the environment
- Ensure that the environmental commitments in this Environmental Management Plan and RoD are complied with by the contractor and its sub-contractors
- Review construction methods, techniques and procedures, identify environmental risk, draw conclusions and recommend possible solutions
- Develop, implement and manage the necessary construction & operational EMS
- Proactively interpret and objectively analyse environmental data and initiate programs to mitigate against the environmental and related risks
- Assume a leading role in performing environmental audits and guiding other staff in the performing of external and internal audits
- Perform monthly environmental reporting for input into Divisional management information reports

The Environmental Control Officer will:

- Be fully conversant with the Environmental Impact Assessment Report (EIR).
- Be fully conversant with the conditions of the Record of Decision (RoD).
- Be fully conversant with the Environmental Management Plan.
- Be fully conversant with all relevant environmental legislation and Eskom environmental policies and procedures, and ensure compliance with them.

- Ensure that periodic environmental performance audits are undertaken on the project implementation.
- Submit an environmental compliance report on a two-monthly basis, in writing, to the Director-General of the DEAT, copied to the Limpopo Department of Economic Development, Environment and Tourism.
- Maintain the following on site:
 - A daily site register
 - A non-conformance register (NCR)
 - A public complaint register
 - A register of audits
- Remain employed until the completion of the construction phase.
- Report to project manager and be accountable to the EMC.

In addition, the Environmental Control Officer will:

- Convey the contents of this document to the site staff and discuss the contents in detail with the Project Manager and Contractor.
- Undertake regular and comprehensive inspection of the site and surrounding areas in order to monitor compliance with the EMP.
- Take appropriate action if the specifications contained in the EMP are not followed.
- Monitor and verify that environmental impacts are kept to a minimum, as far as possible.
- Ensure that activities on site comply with all relevant environmental legislation.
- Compile progress reports on a regular basis, with input from the Site Manager, for submission to the Project Manager, including a final post-construction audit carried out by an independent auditor/consultant.

Generation Environmental Manager will:

- Provide overall assurance to the Managing Director: Generation Division (and hence ultimately the CEO) that environmental issues are appropriately addressed and managed at the construction site
- Provide overall assurance to the Managing Director: Generation Division that conditions in the Record of Decision (RoD) and EMP are adhered to
- Ensure that appropriate reporting of environmental performance/issues takes place
- Where necessary, liaise on a strategic level with environmental authorities on RoD/EMP-related issues (insofar as construction-related non-compliance is concerned)

Contractors and Service Providers:

All contractors (including subcontractors and staff) and service providers are ultimately responsible for:

- Complying with the environmental management specifications where applicable;
- Provide Environmental; Method Statements to the Site Manager with regards to how certain activities on-site will be conducted.
- Adhering to any environmental instructions issued by the Site Manager/Project Manager on the advice of the ECO;
- Submitting a report, in a format and frequency as decided upon by the Project/Site Manager, which will document all incidents that have occurred during the period before the site meeting
- Arrange that all his employees and those of his subcontractors receive training. Training has to be appropriate for the level of the tasks and functions undertaken.

The Environmental Method Statement referred to above will cover applicable details with regard to:

- Construction procedures;
- Materials and equipment to be used;
- Getting the equipment to and from site;
- How the equipment/material will be moved while on-site;
- How and where material will be stored;
- The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
- Identified potential impacts of the activity and mitigation measures thereof;
- Compliance/non-compliance with the Environmental Specifications; and
Any other information deemed necessary by the Site Manager.

2.2. Environmental Specifications: Awareness and Competence

It is important to ensure that all personnel have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and ongoing minimisation of environmental harm.

To achieve effective environmental management, it is important that employees, Contractors and Subcontractors are aware of the responsibilities in terms of the relevant environmental legislation and the contents of this EMP. Environmental training may typically include the following:

- Employees must have a basic understanding of the key environmental features of the construction site and the surrounding environment;
- Employees will be familiar with the requirements of the EMP and the environmental specifications as they apply to the construction of the power station.

- Basic training in the identification of archaeological artefacts, and rare and endangered flora and fauna that may be encountered on the site.
- Awareness of any other environmental matters, which are deemed to be necessary by the ECO.
- Records must be kept of those that have completed the relevant training.

Training can be done both in a written or verbal format and in an appropriate language, but will be in an appropriate format for the receiving audience. Where training has been done verbally, persons having received training must indicate in writing that they have indeed attended a training session. A regular form of written or verbal testing will have to be designed.

2.3. Monitoring and Measurement Programme

A monitoring programme will be in place not only to ensure conformance with the EMP, but also to monitor any environmental issues and impacts which have not been accounted for in the EMP that are, or could result in significant environmental impacts for which corrective action is required. Eskom will stipulate the period and frequency of monitoring required. This will be determined in consultation with relevant stakeholders and authorities. The Project Manager will ensure that the monitoring is carried out.

The Environmental Control Officer will ensure compliance with the EMP, and to carry out monitoring activities. The Environmental Control Officer must have the appropriate experience and qualifications to undertake the necessary tasks. The Environmental Control Officer will report to the Environmental Monitoring Committee and Site Manager should any non-compliance be evident or corrective action necessary. Only in severe cases of non-compliance, or repeated offences, will the Environmental Control Officer be required to report to the Project Manager.

All instruments and devices used for the measurement or monitoring of any aspect of this EMP must be calibrated and appropriately operated and maintained.

2.4. General inspection monitoring and reporting

The Contractors' Responsible Person or Environmental Officer shall

- Inspect the site on a daily basis to ensure that the environmental specifications are adhered to.
- Provide the ECO and Environmental Manager with a written monthly report, detailing both compliance with the Environmental Specification as well as environmental performance. The Environmental and Compliance Report will be made available to

the Environmental Monitoring Committee (EMC) as and when necessary, should they request to see it.

- Maintain a record of major incidents (spills, impacts, complaints, legal transgressions, etc) as well as corrective and preventive actions taken, for submission to the Site Manager and the ECO/ Environmental Manager at the scheduled meetings.
- Conduct regular internal audits to ensure that the system for implementation of the Environmental Specification is operating effectively. The audit shall check that a procedure is in place to ensure that:
 - the environmental method statements and the Environmental Specifications (ES) being used are up to date
 - variations to the ES and environmental method statements and non-compliances and corrective actions are documented
 - appropriate environmental training of personnel is undertaken; and
 - emergency procedures are in place and effectively communicated to personnel

The Environmental Officer shall also provide information to the Site Manager or his representative, as required during external audits conducted by or on behalf of the Site Manager as part of the auditing programme. The information required will include the reports of internal audits conducted by the Environmental Officer.

2.5. Non-Conformance and Corrective Action

The monitoring of the construction of the landfill site may identify non-conformances of the EMP. Non-conformances may also be identified through incidents, emergencies or complaints. In order to correct these non-conformances, the route course must be determined and corrective actions must be identified.

2.5.1. Compliance with the Environmental Management Plan, Environmental Specifications, Environmental Method Statements and/or Record of Decision conditions

- The EMP will be available on-site at all times.
- All employees on-site will abide by the requirements of the EMP.
- Any members of the construction workforce found to be in breach of any of the specifications contained within the EMP may be ordered by the Project Manager to leave the site. The order may be given orally or in writing. Confirmation of an oral order will be provided as soon as practically possible, but the absence of a written order will not be cause for an offender to remain on site.
- The Contractor will not direct a person to undertake any activity which would place them in contravention of the specifications contained within the EMP.

- Should the Contractor be in breach of any of the specifications contained in the EMP, the Project Manager will, in writing, instruct the Contractor responsible for the incident of non-compliance regarding corrective and/or remedial action required, specify a timeframe for implementation of these actions, implement a penalty and/or indicate that work will be suspended should non-compliance continue.
- The Environmental Monitoring Committee (EMC) must report to the Director-General of the Department of Environmental Affairs & Tourism (DEAT) on a bi-monthly basis, insofar as project compliance to the condition of this Record of Decision, environmental legislation and specific mitigation requirements as stipulated in the Environmental Impact Report (EIR) and the Environmental Management Plans is concerned. The report should be sent to the Director of the Environmental Division as well.
- The applicant must notify the DEAT, in writing, **within 24 hours** thereof if any condition of the ROD authorisation cannot, or is not, adhered to. The notification must be supplemented with reasons for non-compliance.
- Departmental officials will be given access to the property referred to in the ROD authorisation for the purpose of assessing and/or monitoring compliance with the conditions contained in the ROD, at all reasonable times.
- Records relating to monitoring and auditing must be made available for inspection to any relevant authority in respect of this development.
- The DEAT reserves the right to monitor and audit the development throughout its full life cycle to ensure that it complies with the RoD conditions, as well as mitigation measures in the final Environmental Impact Report (EIR), addendum report to the EIR and the construction EMP.

2.6. Documentation and Reporting

The following documentation must be kept on site by the Environmental Control Officer in order to record compliance with the EMP:

- Record of Complaints;
- Monitoring Results;
- Notification of Emergencies and Incidents; and
- Any other documentation as required by the Record of Decision.

In addition, the Environmental Control Officer shall:

- maintain records to demonstrate compliance to the Environmental Specifications; and Environmental Method Statements. The Contractor shall ensure that all records of spills, pollution incidents, spot fines, training details, etc. are copied to the ECO for his/her records. All documents shall be open for inspection by the ECO.

2.6.1. Fines and penalties

- The Site Manager may identify a Contractor that is best implementing the Environmental Specifications and Environmental Method Statements and may make a periodic award to, or acknowledge, that Contractor.
- Spot fines shall be imposed by the Site Manager on the Contractor if the Contractor is found to be infringing on this Specification. The Contractor shall be advised in writing of the nature of the infringement and the amount of the spot fine. The Contractor shall determine how to recover the fine from the relevant person and/or sub-contractor and/or supplier. The Contractor shall also take the necessary step (e.g. training) to prevent a recurrence of the infringement and shall advise the Site Manager accordingly.
- The imposition of spot fines does not replace any legal proceedings the local authorities, environmental authorities and/or members of the public may institute against the Contractor.
- Spot fines shall be between R20 and R2000, depending on the severity of the infringement. The decision on how much to impose will be made by the Site Manager, and will be final. In addition to the spot fine, the Contractor shall be required to make good any damage caused as a result of the infringement at his own expense.
- A preliminary list of infringements for which spot fines will be imposed is as follows:
 - Moving outside the demarcated site boundaries;
 - Littering of the site and surrounds;
 - Burying waste on site and surrounds;
 - Smoking in the vicinity of fuel storage and filling areas and in any other areas where flammable materials are stored/used;
 - Making fires outside designated areas;
 - Defacement of natural features;
 - Using the veld for ablution purposes;
 - Spillage onto the ground of oil, diesel, etc.
 - Picking/damaging plant material;
 - Damaging/killing wild animals; and
 - Additional fines as determined by the Site Manager and added to this list.
- Receipts for fines paid shall be issued, and the appropriate documentation retained, by the Site Manager. Money “raised” through fines may be used to fund environmental/social schemes on-site.

2.6.2. Environmental Register

The Contractor will report environmental incidents involving Contractor employees and/or the public:

- Report environmental incidents involving Contractor employees and/or the public
- Report environmental complaints and correspondence received from the public to the Project Manager or the Environmental Control Officer.
- Record and report incidents that cause harm or may cause harm to the environment to the Environmental Control Officer.
- Record all hazardous materials used on site.
- Maintain a record of all Hazardous Waste Disposal Manifests detailing the nature of the hazardous waste disposed of, the hazardous waste classification and the location of the site to which such waste was sent.

The above records will form an integral part of the Contractors' Records. These records will be kept with the EMP, and will be made available for scrutiny if so requested by the Project Manager or his delegate and the Environmental Control Officer.

The Environmental Control Officer will put in place an Environmental Register to document:

- All environmental complaints and correspondence received from the public, Eskom or the construction workforce.
- Incidents of non-compliance with the EMP.
- Any other environmental incidents related to the construction phase of the project.

The Environmental Control Officer will ensure that the following information is recorded for all complaints/incidents:

- Nature of complaint/incident.
- Causes of complaint/incident.
- Party/parties responsible for causing complaint/incident.
- Immediate actions undertaken to stop/reduce/contain the causes of the complaint/incident.
- Additional corrective or remedial action taken and/or to be taken to address and to prevent reoccurrence of the complaint/incident.
- Timeframes and the parties responsible for the implementation of the corrective or remedial actions.

- Procedures to be undertaken to be applied if corrective or remedial actions are not implemented.

Copies of all correspondence received regarding complaints/incidents.

2.1. Public Communication and Liaison with I&APs

Eskom must ensure that the public and surrounding communities are informed and updated throughout the construction phase, or as and when specific issues arise. An appropriate method of communication shall be decided upon by the Project Manager.

Sufficient signage should be erected around the site (including at the entrance), informing the public of the construction activities taking place. The signboards should include the following information:

- The name of the Eskom
- The name and contact details of the site representative to be contact in the event of emergencies or complaint registration.

2.7. Environmental Monitoring Committee (Lephalale)

Following the issue of a positive authorisation, Eskom must establish an EMC with clear terms of reference.

The purpose/terms of reference of the EMC is to execute the following:

- To monitor and audit project compliance to the condition of this Record of Decision, environmental legislation and specific mitigation requirements as stipulated in the Environmental Impact Report (EIR) and the Environmental Management Plans;
- To make recommendations to the Director-General on issues related to the monitoring and auditing of the project; and
- The EMC shall decide on the frequency of meetings should a need arise to review the prescribed frequency. This change should be communicated to the department (DEAT) for acceptance.

The EMC shall consist of, amongst others, the following members:

- An independent chairperson who has appropriate people and project management skills, to be appointed by the EMC;
- The ecologist that participated in the EIA process, or any other suitably qualified and experienced ecologist approved for this purpose by the department;

- Two representatives of the public: one community member from Marapong and one from Lephalale;
- The Environmental Control Officer (ECO);
 - A senior site manager.

2.7.1. Functional Aspects

- The EMC must meet on a bi-monthly basis from the inception of the project.
- The EMC must report to the Director-General of the Department of Environmental Affairs & Tourism on a bi-monthly basis (or possibly the Director: Environmental Impact Evaluation), and the report must deal with matters as specified in the purpose/terms of reference of the EMC.
- All costs associated with the EMC, shall be borne by Eskom.
- In addition to the purpose of the EMC as set-out above, the TOR for the EMC must clearly set out roles and responsibilities related to logistical arrangements, administration and financial arrangements associated with the EMC.
- Upon completion of construction, the role, responsibilities and constitution of the EMC shall be re-considered and re-established with new terms of reference for the operational phase of the development.

4. ENVIRONMENTAL MANAGEMENT PLAN (EMP)

The following table forms the core of this EMP for the construction and operational phases of the development. This table should be used as a checklist on site, especially during the construction phase. Compliance with this EMP must be audited monthly during the construction phase and once immediately following completion of construction. This must be followed up with annual audits for a period of two years during the operational phase.

Table 1: Planning Environmental Management Plan for the proposed Waste Disposal site and Temporary Hazardous Waste Storage Facility

Activity / issue	Action required	Responsible party	Frequency
Planning	The construction must conform to both the applicable permit conditions and the Minimum Requirements associated with the site classification.	Eskom	Continuous
	It is the duty of the responsible person to ensure that the Minimum Requirements for the operation of the landfill site and the Section 20 permit conditions are applied to the degree equal with its class to the satisfaction of the Department of Water Affairs and Forestry and the Department of Environmental Affairs and Tourism.	Eskom	Continuous
	There must be sufficient facilities (plant materials) and resources (trained labour force) to ensure that the landfill operation can conform to both the permit conditions and relevant Minimum Requirements. For example, there should be sufficient trained staff to monitor, control and record incoming waste where required.	Eskom	Continuous
	All construction activities within the landfill must be limited to daylight hours. Should there be a need to undertaken construction at night, such will require approval from the Project Manager and the Environmental Monitoring committee be notified of such intentions.	Contractor	Continuous
Appointment and Duties of ECO	Eskom must appoint an independent Environmental Control Officer (ECO) who must monitor the contractor's compliance with the environmental management plan.	Eskom	Once-off
	The Eskom must provide the ECO and contractor with a copy of the EMP.	Eskom	Once-off

Activity / issue	Action required	Responsible party	Frequency
	The priority of the ECO is to maintain the integrity of the development conditions outlined in the EMP and must be enforced and adhered to at all time.	ECO	Continuous
	The ECO must form part of the project management team and attend all project meetings.	ECO	Continuous
	The contractor must ensure that the construction crew attend an environmental briefing and training session presented by the ECO prior to commencing activities on site.	ECO, Contractor	Once-off
Appointment and Duties of EO	The contractor must appoint an Environmental Officer (EO). This person will be required to monitor the situation with a direct hands-on approach, and ensure compliance and co-operation of all personnel. He should be fluent in the languages of the employees.	Contractor	Once-off
EMP	This EMP must be made binding to the main contractor as well as individual contractors and should be included in tender documentation for the construction contract.	Eskom, ECO	Once-off
Permits and Permissions	The Contractor shall ensure that all pertinent permits, certificates and permissions required for the project have been obtained prior to any activities commencing on site and ensure that they are strictly enforced/adhered to. This includes, for example, licence for storage of flammable liquids and hazardous materials (obtained from Lephalale Municipality, if applicable) and other permits and legislative requirements applicable to the project.	Contractor, Eskom	Continuous

Activity / issue	Action required	Responsible party	Frequency
	The Contractor shall maintain a database of all pertinent permits and permissions required for the contract as a whole and for critical activities for the duration of the contract.	Contractor, Eskom. ECO	Continuous
Method Statements	<p>The Contractor shall submit written Method Statements to the Site Manager for the activities identified by the Site Manager or ECO. Activities that will require method statements include:</p> <ul style="list-style-type: none"> • Concrete pre-cast and batching operation • Crushing plant operation • Storage facilities for any hazardous substances • Emergency procedures • Site establishment • Removal and clearing of vegetation • Materials, equipment and staffing requirements (camp establishment) • Transporting the materials and/or equipment to, from and within the site • The storage provisions for the materials and/or equipment • The proposed construction procedure designed to implement the relevant Environmental Specifications • Other information deemed necessary by the RE and/or ECO. <p>Method Statements shall be submitted at least ten working days</p>	Contractor, RE, ECO	As necessary

Activity / issue	Action required	Responsible party	Frequency
	prior to the proposed commencement of work on an activity to allow the RE (and/or ECO) time to study and approve the method statement.		
	The Contractor shall not commence work on that activity until such time as the Method Statement has been approved in writing by the Site Manager.	Contractor, Manager, ECO Site	Continuous
	The Contractor shall carry out the activities in accordance with the approved Method Statement.	Contractor, Manager, ECO Site	Continuous
	Under certain circumstances, the RE may require changes to an approved Method Statement. In such cases the proposed changes must be agreed upon in writing between the Contractor and the RE, and appropriate records retained.	Contractor, Manager, ECO Site	Continuous

Activity / issue	Action required	Responsible party	Frequency
	Approved Method Statements shall be readily available on the site and shall be communicated to all relevant personnel. Approval of the Method Statement shall not absolve the Contractor from any of his obligations or responsibilities in terms of the EMP specifications.	Contractor, Eskom	Continuous
Existing Services and Infrastructure	The Contractor shall ensure that existing services (e.g. roads, pipelines, powerlines and telephone services) are not damaged or disrupted unless required by the contract and with the permission of the RE.	Contractor, Site Manager, ECO	Continuous
	The Contractor shall be responsible for the repair and reinstatement of any existing infrastructure that is damaged or services which are interrupted.	Contractor	As necessary
	Such repair or reinstatement will be to the Contractor's cost and shall receive top priority over all other activities.	Contractor	Continuous
	A time limit for the repairs may be stipulated by the Site Manager in consultation with the Contractor	Contractor, RE, ECO	Continuous
Environmental incidents	The contractor must take corrective action to mitigate an incident appropriate to the nature and scale of the incident and must also rehabilitate any residual environmental damage caused by the incident or by the mitigation measures themselves.	EO, ECO, Contractor	Continuous

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

Table 2: Construction Environmental Management Plan for proposed Waste Disposal site and Temporary Hazardous Waste Storage Facility

Activity / issue	Action required	Responsible party	Frequency
Recruitment of labour	The contractor must make use of local labour where possible in order to stimulate the local economy.	Contractor	Once off
	The contractor must appoint one of his employees to act as an Environmental Liaison Officer. This person will be required to monitor the situation with a direct hands-on approach. Eskom internal policies in terms of recruitment of labourers must be implemented.	Contractor	Once off

Activity / issue	Action required	Responsible party	Frequency
Site establishment	Any construction camp required by the contractor must be established in an area as agreed with the ECO. The site for the construction camp must not be in an environmentally sensitive area such where indigenous vegetation exists, on a steep slope or on erosive soils. The area must be properly demarcated prior to establishment to prevent the construction camp from being unnecessarily large. The camp must be properly fenced. The EO must liaise with surrounding parties to ensure that the construction camp is not located in an area where it will cause a nuisance.	ECO, Contractor	Once off
	The working width of the construction area must be clearly demarcated by the installation of coloured pegs prior to construction. Particularly sensitive areas (e.g. areas with vegetation to be preserved) must be demarcated with danger tape.	ECO, Contractor	Once off, monitor weekly
	The lateral spread of the construction must be monitored on a weekly basis.	ECO, EO, Contractor	Monitor monthly
	The EO will also be required to monitor unauthorised movement of construction crew.	EO, Contractor	Once off, monitor daily
Site establishment	A general notice board must be erected at the site entrance, as per DWAF Minimum Requirements for information required to be on the notice board as per the RoD.		
	The Eskom should provide dustbins to be used during site preparation and surveying.	Contractor	Once off, monthly, as and when needed
	To prevent excessive disturbance of natural vegetation, the contractor should use existing disturbed or paved areas wherever possible.	ECO, Contractor	Once off, monitor weekly

Activity / issue	Action required	Responsible party	Frequency
	To prevent the deterioration of surface water quality, the contractor must provide adequate ablution facilities. Toilets are to be serviced twice a week as a minimum and as and when required thereafter, throughout the construction phase. Every effort must be made to prevent the contamination of surface or sub-surface water.	Contractor	Bi-weekly inspections
Site Housekeeping	The Construction site and surrounds are to be maintained in a clean orderly and presentable condition at all times.	Contractor	Monitor Daily
	Regular inspections by the Contractor (and ECO) will be undertaken using checklists to ensure a minimum standard of orderliness is maintained.	Contractor, ECO	Weekly
	Construction activities shall avoid causing unnecessary disruption and nuisance to adjacent landowners and the public as a whole	Contractor	Continuous
General: waste	Litter generated by the construction crew must be collected in rubbish bins and disposed of weekly at registered waste disposal sites.	EO, Contractor	Weekly
	All building rubble, solid and liquid waste etc must be disposed of as necessary at an appropriately licensed refuse facility.	EO, Contractor	Once off, as necessary
	Ensure that no refuse wastes are burnt on the premises or on surrounding premises. No fires will be allowed on site, unless in designated areas approved by the ECO)	EO, Contractor	Monitor daily
	The construction site must be kept in a clean and orderly state at all times.	Contractor, Construction crew	Monitor daily

Activity / issue	Action required	Responsible party	Frequency
	Ensure that no litter, refuse, wastes, rubbish, rubble, debris and builders wastes generated on the premises be placed, dumped or deposited on adjacent/surrounding properties during or after the construction period of the project are disposed of at dumping site as approved by the Council.	EO, Contractor	Monitor daily - weekly
Fire Prevention and Control	The Contractor shall take all reasonable and precautionary steps to ensure that uncontrolled fires are not started as a consequence of his activities on site.	Contractor	Daily
	The Contractor shall ensure that there is basic fire-fighting equipment available on site as per requirement of the local Emergency Services	Contractor, ECO	Continuous
	The Contractor shall ensure that all site personnel are aware of the fire risks and how to deal with any fires that occur. This shall include, but not be limited to: <ul style="list-style-type: none"> • Regular fire prevention talks • Posting of regular reminders to staff. 	Contractor, ECO	Continuous
	Any accidental fires, which occur, shall be reported to the Eskom Environmental Manager immediately and then to the relevant authorities.	Contractor	Continuous

Activity / issue	Action required	Responsible party	Frequency
Emergency Procedures	<p>The Contractor shall submit Method Statements covering the procedures and response plan for the main activities, which could generate emergency situations through accidents or neglect of responsibilities. These situations include, but are not limited to:</p> <ul style="list-style-type: none"> • Accidental fires • Accidental leaks and spillages • Vehicle and plant accidents • Blasting (if required) 	Contractor	As necessary
	<p>Accidental leaks and spillages</p> <ul style="list-style-type: none"> • The Contractor shall ensure that his employees are aware of the procedure for dealing with spills and leaks. • The Contractor shall also ensure that the necessary materials and equipment for dealing with the spills and leaks is available on site at all times. 	Contractor	Continuous
	<p>Hydrocarbon spills</p> <ul style="list-style-type: none"> • The source of the spill shall be isolated and the spillage contained using sand berms, sandbags, sawdust, absorbent material and/or other materials approved by the Site Agent. • The area shall be cordoned off and secured. • The Contractor shall ensure that there is always a supply of absorbent material readily available to absorb/breakdown the spill. • The Contractor shall notify the relevant authorities of any spills that occurs. 	Contractor	As necessary

Activity / issue	Action required	Responsible party	Frequency
	The Contractor shall assemble and clearly list the relevant emergency telephone contact numbers for staff and brief staff on the required procedures.	Contractor	Weekly
Hazardous Substances	If potentially hazardous substances are to be stored on site, the Contractor shall provide a Method Statement detailing the substances/materials to be used together with the procedures for the storage, handling and disposal of the materials in a manner which will reduce the risk of pollution that may occur from day to day storage, handling, use and/or from accidental release of any hazardous substances used.	Contractor,	Monitor daily - weekly
	Hazardous chemical substances used during construction shall be stored in secondary containers.	Contractor	Monitor daily - weekly
	The relevant Material Safety Data Sheets (MSDS) shall be available on Site. Procedures detailed in the MSDS shall be followed in the event of an emergency situation.	Contractor	Monitor daily - weekly
	The Contractor must ensure that all hazardous chemical substances are labelled, packed, transported and stored in order to avoid the spread of contamination.	Contractor & Eskom	Monitor daily - weekly
	All hazardous chemical substance waste must be disposed of in accordance with the Hazardous Chemical Substances Regulations, 1995 (Regulation 15).	Contractor & Eskom	Monitor daily - weekly

Activity / issue	Action required	Responsible party	Frequency
	The waste, resulting from the use of hazardous materials, shall be disposed of at a hazardous waste disposal site as approved by the RE. Storage and disposal of waste is regulated through other legislation, which should be complied with i.e. the Occupational Health and Safety Act.	Contractor, RE	Monitor daily - weekly
Health and Safety	The Contractor shall comply with all standard and legally required health and safety regulations as promulgated under the Occupational Health and Safety Act and associated regulations.	Contractor, RE	Daily
	The Eskom must provide and maintain personal protective equipment and facilities to employees working with hazardous chemical substances.	Eskom, Contractor	Daily
	Official training in the correct fit, use, care, storage and limitations of all Personal Protective Clothing, Respiratory and Hearing Equipment must be given to the employees	Eskom, Contractor	Daily
	The Contractor shall provide a standard first aid kit at the site office of each camp and/or at additional identified locations where needed	Contractor	Daily
Air Pollution	Unsurfaced roads and temporary roads must be regularly graded and watered to control dust.	Contractor	As and when necessary
	Active earth work areas, stockpiles and loads of soil being transported must be watered to reduce dust.	Contractor	As and when necessary

Activity / issue	Action required	Responsible party	Frequency
	Measure must be taken to immediately mitigate a situation in which excessive fugitive dust is observed. Works being undertaken must be undertaken with caution, or phase down while the source is being actively investigated and suppression measures are implemented.	Contractor	As and when necessary
	All areas disturbed during construction that are not required for a specific activity must be revegetated.	Contractor	As and when necessary
	Disturbed soils, slopes and areas of open excavation must be minimised to avoid wind erosion.	Contractor	As and when necessary
	Diesel exhaust emissions from heavy machinery on site (excavators, front end loaders and hauling trucks) must be controlled and minimised by regular checks and servicing of vehicles. Any construction vehicle found to be emitting excessive smoke should be stopped from the operations for some mechanical attention before it could continue.	Contractor	As and when necessary
	No development will take place within a 100 year floodline.	Contractor	As necessary
Surface and ground water	All cells must be lined with an HDPE or GCL liner, or both, which will prevent the generation of leachate.	Contractor	Once off
	Run off drains will be installed leading to a leachate dam, for each phase of the landfill.	Contractor	Once off
	Construction activities must preferably take place during the dry winter months. If construction activities take place in the wet months appropriate measures must be taken to control stormwater and implemented to prevent erosion.	Eskom	Once off

Activity / issue	Action required	Responsible party	Frequency
	Ensure that excavated and stockpiled soil material is stored and bermed on the higher lying areas.	EO, Contractor	Once off
	Vegetation clearance must be kept to a minimum to reduce the risk of siltation.	EO, Contractor	Once off
	Adequate provision must be made for sanitation for the construction workers. Chemical toilets on site are to be emptied weekly.	Eskom, ECO, Contractor	Once off
	Construction vehicles are to be maintained in good working order, to reduce the probability of leakage of fuels and lubricants. No servicing of vehicles is to be undertaken in close proximity to watercourses.	EO, Contractor	Once off
	Construction and the use of construction machinery should be limited between 06h00 and 18h00 on weekdays . However if construction activities need to be outside of these times or on weekends, this needs to be approved by the Project Manager and the EMC, and Authorities must be informed.	Eskom, Contractor	Monitor daily

Activity / issue	Action required	Responsible party	Frequency
General: noisy activities	Institute noise control measures throughout the construction phase for all applicable activities, including the construction times. •For mobile equipment noise, -select vehicle routes carefully by means of internalising the roads •Fit efficient silencers and enclose engine compartments in plant vehicles • For fixed plant noise -Reduce noise at source by damping acoustic treatment, etc. -Isolate source by enclosure in acoustic building, room, etc. -Carefully select fixed plant site for remoteness from sensitive areas -Raise barriers or berms around noisy equipment	EO, Contractor	Once off, as necessary
	Inform the EMC of planned noisy activities outside the timeframes stated above.	ECO, EO, Contractor	Once off, as necessary
	Construction activities must abide by the national noise laws and the municipal noise by-laws with regard to the abatement of noise caused by mechanical equipment. In the absence of bylaws, national regulations on noise control must be complied with	Eskom, EO, Contractor	Continual
	Prior to blasting (if required), the contractor must inform the adjacent landowners and EMC at least a few days in advance.	EO, Contractor	As necessary
	Ensure that the construction vehicles are under the control of competent personnel and are in proper working order.	Contractor	Before construction commences & continual
General: Crime, safety and security	Ensure that only suitably qualified personnel use construction vehicles	Contractors	Before construction commences & continual

Activity / issue	Action required	Responsible party	Frequency
	Ensure that the contact details of the police or security company and ambulance services are available on site.	Contractor	Once off, monitor weekly
	Limit access to the construction crew camp to construction workers through access control.	EO, Contractor	Once off, Continual
	Ensure that the handling of equipment and materials is supervised and adequately instructed.	EO, Contractor	Continual
	Vehicular traffic during construction activities must be limited to a maximum speed limit of 30 km/hr.	EO, Contractor	Continual
	Site notices informing the public of the planned activities must be placed at visible locations a few days prior to any blasting.	EO, Contractor	As necessary
	<p>Based on the preferred footprint area chosen for the proposed landfill site that certain trees and vegetation may need to be removed. In this case vegetation clearing should only be done where necessary and areas not required for construction should be preserved or avoided.</p> <p>If any trees need to be removed for construction purposes. New trees should be planted so that there is no net loss of trees.</p>	Contractor, Suitable specialist ECO, qualified	As necessary
Tree/Vegetation removal	The working strip required for the construction of the landfill and Waste Storage Facility must be effectively monitored to prevent excessive vegetation removal. By maintaining the maximum amount of stabilising vegetation, the extent of erosive action will be contained.	EO, Contractor	Monitor weekly

Activity / issue	Action required	Responsible party	Frequency
Stripping of vegetation	Should the construction phase occur in the rainy season, the erection of berms may be necessary in areas prone to erosion (e.g. steep slopes or erosive soils). These bermed areas must be monitored frequently for signs of erosion.	EO, Contractor	Once off, monitor weekly
	Vegetation to be retained during the construction phase must be clearly demarcated with danger tape.	EO, Contractor	Once off, as necessary
	The topsoil cleared must be retained. The topsoil contains most of the inorganic matter, decomposed organisms and nutrients, thus the removal of the topsoil constitutes a major loss in terms of ecosystem function. In order to ensure that the minimal amount of soil is removed with vegetation clearance, it is strongly advised that vegetation be harvested as close to ground level as possible before earthworks machinery is utilised. Soil removed in this manner will contain the existing seed bank, stolons, rhizomes and runners as well as an additional supply of organic matter that will be beneficial during the early stages of vegetation reinstatement. Harvested grass should be retained and used as a mulch to combat erosion.	EO, ECO, Contractor	Once off, monitor weekly
Excavation	Topsoil and subsoil must be placed on opposite sides of the trench and must be kept separate throughout construction and rehabilitation.	EO, ECO, Contractor	Monitor weekly
	Topsoil must not be stockpiled for an extensive period (> 3 months). This is to prevent the redundancy of the existing seed bank as well as the alteration of the soil characteristics (permeability, bulk density etc.).	EO, ECO, Contractor	Monitor weekly
	Erect signs and/or danger tape around the exposed excavations to warn the public of the inherent dangers.	EO, Contractor	Continual

Activity / issue	Action required	Responsible party	Frequency
	Trucks removing excavated material can cause compaction of soil if new pathways are created. Vehicles should, therefore, use existing roads. If the creation of new roads is unavoidable, these temporary roads should be ripped and re-vegetated after use.	ECO, Contractor	Monitor weekly
Removal of excavated material	Ensure that excavated and stockpiled soil material is stored and bermed on the higher lying areas of the site and not in any storm water run-off channels or any other areas where it is likely to cause erosion or where water would naturally accumulate.	ECO, Contractor	Once off, Daily
Stockpiling soil	The areas where excavated soil will be stockpiled must be bordered by berms to prevent soil loss caused by rain.	EO, Contractor	Once off, monitor weekly
	Archaeological material, by its very nature, occurs below ground. The Contractor should therefore keep in mind that archaeological sites might be exposed during construction. If any are noticed, construction personnel must be alerted and must inform the local SAHRA should they come across any cultural/archaeological findings. Work should be stopped in the area until such time when the archaeologist or SAHRA or both had observed the area and recommended a way forward.	Contractor	As necessary
Destruction/protection of heritage resources	Should any archaeological artefacts be exposed during excavation, work on the area where the artefacts were found, shall cease immediately and the ECO shall be notified as soon as possible.	EO, Contractor	Monitor daily
	Upon receipt of such notification, the ECO will arrange for the excavation to be examined by an Archaeologist as soon as possible.	ECO, Contractor	As necessary
	Under no circumstances shall archaeological artefacts be removed, destroyed or interfered.	EO, Contractor	Continuous

Activity / issue	Action required	Responsible party	Frequency
	Any archaeological sites exposed during construction activities may not be disturbed prior to authorisation by the South African Heritage Resources Agency.	ECO, Contractor	As necessary
	Sensitive environments and natural features within and/or close to a construction site will be designated as 'no-go' areas and will be subject to the conditions described in the Environmental Specification	Contractor, ECO	As necessary
Protection of Sensitive Environments and Natural Features	Any taxa, especially those of conservation concern (as per the ecological report) exposed during the construction activities should be captured for later release or translocation to adjacent suitable habitat.	Contractor, ECO	As necessary
Translocation of sensitive species	All geophytes and medicinal plants from affected vegetation units must be removed with the necessary permits and established in a nursery. After construction, the species must be replanted during the rehabilitation phase. A management plan (to be compiled by the ECO) should be implemented to ensure proper establishment of ex situ individuals, and should include a monitoring programme for at least two years after re establishment (to ensure successful translocation).	Contractor, ECO	As necessary
	Remove vegetation only within the minimum width necessary for the excavation of the cable trench.	EO, Contractor	Once off
Aesthetic / visual	Prevent unnecessary removal of vegetation outside the width of the working area by clearly demarcating the working area.	EO, Contractor	Continual
	Remove spoil material from the area once the trench has been filled.	Contractor, Construction crew	Continual

Activity / issue	Action required	Responsible party	Frequency
	Remove vegetation and topsoil and stockpile separately from subsoil prior to excavation of the cable trench.	EO, Contractor	Continual
	Revegetate disturbed ground in the working area by seeding and spreading of vegetation that has been removed from the trench at the start of construction.	EO, Contractor	Continual

OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN

Table 3: Operational Environmental Management Plan for the proposed Waste Disposal site and Temporary Hazardous Waste Storage Facility

Activity / issue	Action required	Responsible party	Frequency
General	A maintenance plan for the landfill must be developed to ensuring that good working order is achieved.	Eskom, ECO	Once-off
Monitoring	A monitoring and eradication programme should be put in place whereby the distribution and abundance of alien and invader fauna are monitored through fixed trapping points. (Refer to Appendix 1b)	Eskom,	
Waste composition, inventory and inspection	Landfill operator must ensure that a register is kept throughout the life of the facility of the quantities and characteristics of the waste deposited	Eskom, Waste Contractor	Continual
	Information on waste register must include the origin of waste, type of waste, date of delivery, identify of the producer or collector,	Landfill operator	Continual
	Regular visual inspection of the waste at the point of deposit should be undertaken to ensure that waste is properly sorted/ separated at the site	Landfill operator	Continual
Management of landfill gas and odours	Emission rates must be reduced by limiting the extent of uncapped areas on non operational areas of the site	Landfill operator	Continual
	An area or cell should be regularly covered with temporary cover material to reduce gas emissions from the area. The prompt covering of malodorous waste to reduce odour problems is a Minimum Requirement. In extreme cases, odour suppressants such as spray curtains may be required.	Eskom, Landfill operator	Continual

Activity / issue	Action required	Responsible party	Frequency
	Where breached in the cover from which significant volumes of landfill gas escape are identified by their odour, a proper investigation is a Minimum requirement. This may be followed by properly engineered passive or active gas venting and flaring to alleviate odour problems. Where a gas management system exists at a site, it must be correctly operated, maintained and monitored to ensure that any landfill gas emanating from the site is properly managed.	Eskom, Landfill operator	As necessary
	Special cells may be constructed for the disposal of putrescible general wastes. Such wastes should be deposited and covered immediately with a layer of soil at least 0.5m thick. This will prevent odours and discourage uncontrolled salvage.	Eskom, Landfill operator	As necessary
	Accidental fires on landfills where burning is not permitted must be extinguished immediately. Appropriate operational procedures involving the spreading and smothering of burning waste, rather than the application of water, must be implemented.	Eskom, Landfill operator	As necessary
Vehicle entrainment from unpaved roads	Wet suppression or chemical stabilisation of unpaved roads should be conducted as and when required or as required by the RoD.	Eskom, Landfill operator	As necessary
	Ensure that unnecessary traffic is reduced	Eskom, Contractor	As necessary
	Employ speed control measures on roads to control dust and wearing of roads	Eskom, Contractor	As necessary
	Employ extensive windbreaks around the landfill area can reduce the particle pollution in the surrounding areas of the landfill	Eskom, Contractor	As necessary

Activity / issue	Action required	Responsible party	Frequency
Health & Safety	An emergency plan (including fire management) must be developed and implemented; the relevant authority must approve this plan. Ensure that all fire extinguishers are replaced on or before their expiry dates.	Eskom	Continuous
	Site Safety checks should be carried out in accordance with the pertinent Occupational Health and Safety requirements prior to site closure.	Eskom, Landfill operator	Continuous
	Telephone numbers of emergency services shall be posted conspicuously in the office for use in emergency situations.	Eskom, Landfill operator	Continuous
.Light pollution	Security lights are to be angled downwards to avoid disturbance to adjoining businesses. Illumination of the buildings must take into account the possible distraction glare might have on motorists.	Eskom	Continuous
	Night time light sources must be directed away from, conservation areas, naturally vegetated areas, as this may be the cause of ecological disturbance.	Eskom	Continuous
Stormwater Management	Storm water, wherever possible, must be allowed to soak into the land in the area on which the water has been discharged.	Eskom	Continuous
	The storm water system, especially the discharge points, must be inspected and damaged areas must be repaired if required.	Eskom	Continuous
	No waste or refuse must be allowed to access the storm water infrastructure	Eskom	Continuous
	Discharge points must be inspected for blockages of any kind; these must be removed timeously to ensure the efficient operation of the storm water management system.	Eskom	Continuous

Activity / issue	Action required	Responsible party	Frequency
	Excessive quantities of silt laden runoff water must not be allowed to access the storm water system. In the event that silt runoff occurs off the development site, the cause of this must be investigated and suitable mitigation measures employed. This may include the vegetation of bare areas, installing flow diversion channels in consultation with an engineer, installing velocity reducing structures etc.	Eskom	Continuous
	Where vegetation has been utilised as part of the storm water management system, it is important to ensure that the vegetation is maintained for effective infiltration.	Eskom	Continuous
	<p>Where silt traps have been incorporated as part of the storm water management system these must be maintained as per the engineers requirements, the maintenance crew must be informed as to the correct procedure, in terms of the engineers specifications, how the silt trap is to be maintained.</p> <p>The silt trap must be monitored for efficiency; the management body must consult the engineers should the system not function adequately.</p>	Eskom	Continuous
	Great care should be taken to make sure that the sumps do not overflow, such that they can spill to contaminate the environment.	Eskom	Continuous

3. WASTE MANAGEMENT PLAN

The Waste Management Plan will be applicable during the Construction and Operational phases of the landfill and the temporary hazardous waste storage facility and will be for use by the Contractors and the sub contractors that will be involved during the Construction phase. Although many of the Waste Management procedures have already been included in the general and operation EMP, the Eskom, Subcontractors, on site workers and other suppliers are expected to adhere to both the specifications of the general EMP and the WMP procedures for the duration of the contract.

Table 4: Operational Environmental Management Plan for the proposed Waste Disposal site and Temporary Hazardous Waste Storage Facility

Activity / issue	Action required	Responsible party	Frequency
Site establishment	The Eskom should provide dustbins to be used during site preparation and surveying.	ECO, Contractor	Once off
	Prior to construction commencing, adequate waste bins should be provided in order to prevent littering on site.	Contractor	Monitor weekly
	The Contractor must ensure that provision is made for the separation of waste into categories for easy recycling and disposal purposes.	Contractor	Monitor monthly
	The Contractor must liaise with the Local Authority or the responsible company for the collection of domestic waste on a weekly basis, depending on the volumes and quantities generated thereof.	Contractor, EO & ECO	Monitor weekly

Activity / issue	Action required	Responsible party	Frequency
	The Contractor must ensure that there is an area that has been clearly demarcated as a temporal storage for general, hazardous and recyclable wastes.	Contractor	Monitor weekly
	The Contractor must ensure that necessary arrangements are made beforehand for the safe disposal of hazardous materials generated on site by an accredited waste company.	Contractor, EO	Monitor weekly
	The Contractor will also be required to make necessary arrangement for the storage and collection of recyclable waste that is generated on site.	EO, Contractor	Monitor weekly
Site control, Demarcation, Security, Access Control in Waste Storage areas	Waste storage areas shall be provided with signs and display boards which inform everyone entering the site of the demarcated waste storage areas.	Eskom	Once off, monthly
	All Waste Storage areas including areas where potentially hazardous waste is stored shall be adequately fenced in and secured to prevent any access of public members and unauthorised people.	ECO, Contractor	Once off, monitor weekly
	Areas, Containers and Skips identified for the storage of general, recyclables wastes shall be clearly marked to indicate the intended purposes i.e., glass only.	ECO, Contractor	Once off, Bi-weekly inspections
Waste composition, inventory and inspection	Landfill operator must ensure that a register is kept throughout the life of the facility of the quantities and characteristics of the waste deposited.	Eskom, Contractor	Monitor monthly
	Information on waste register must include the origin of waste, type of waste, date of delivery, identify of the producer or collector,	ECO, Contractor	Daily

Activity / issue	Action required	Responsible party	Frequency
	Regular visual inspection of the waste at the point of deposit should be undertaken to ensure that waste is properly sorted at receipt	ECO, Contractor	Daily
Requirements for Waste Management and Collection Contractors	General waste shall be collected by a recognised service provider and be disposed off in registered waste site.	ECO, Contractor	Monitor Daily
	Recyclable waste shall be collected by a recognised recycling service provider for appropriate recycling purposes.	Contractor, ECO	Weekly
	Scrap metals, steel, and glass must be collected in separate waste skips and each container intended for identified recyclable waste must be clearly marked, i.e. scrap metals only		
General: waste	Litter generated by the construction crew must be collected in rubbish bins and disposed of weekly at registered waste disposal sites.	EO, Contractor	Weekly
	All building rubble, solid and liquid waste etc must be disposed of as necessary at an appropriately licensed refuse facility.	EO, Contractor	Once off, as necessary
	The Contractor must ensure that no refuse wastes are burnt on the premises or on surrounding premises. No fires will be allowed on site.	EO, Contractor	Monitor daily
	The construction site must be kept in a clean and orderly state at all times.	Contractor, Construction crew	Monitor daily
	Wet waste should by no means escape from the waste truck whilst in transit	EO, Contractor	As necessary

Activity / issue	Action required	Responsible party	Frequency
	The Contractor must ensure that no litter, refuse, wastes, rubbish, rubble, debris and builders wastes generated on the premises be placed, dumped or deposited on adjacent/surrounding properties during or after the construction period of the project are disposed of at dumping site as approved by the Council.	EO, Contractor	Monitor daily - weekly
	The Contractor must ensure the Waste collection vehicles, when collecting waste from site, are equipped with covers to prevent waste from being blown off the waste collection vehicle during transportation.	EO, Contractor	As necessary
	Wet waste must be contained in such a fashion that whilst in transit, no liquid escapes from the load area.	Contractor	As necessary
	If potentially hazardous wastes are to be stored on site, the Contractor shall provide a Method Statement detailing the substances/materials to be used together with the procedures for the storage, handling and disposal of the materials in a manner which will reduce the risk of pollution that may occur from day to day storage, handling, use and/or from accidental release of any hazardous substances used.	Contractor,	Monitor daily - weekly
Hazardous Substances	Hazardous chemical substances used during construction shall be disposed off appropriately.	Contractor	Monitor daily - weekly
	Used oil from construction must be collected in drums and stored properly		

Activity / issue	Action required	Responsible party	Frequency
	The waste, resulting from the use of hazardous materials, shall be disposed off at a hazardous waste disposal site as approved by the RE. Storage and disposal of waste is regulated through other legislation, which should be complied with i.e. the Occupational Health and Safety Act.	Contractor, Site Manager	Monitor daily - weekly
	The Contractor and the EO must ensure that all persons involved in waste collection, sorting, transport and disposal have undergone the necessary training during the operational phase.	Contractor. ECO	Once off
Health Risks	The Contractor shall keep records for the regular collection of all waste types and disposal thereto, details of waste company responsible for waste collection. An example of such a form is included in Appendix 2 .	Contractor	Monitor monthly
Record Keeping	Waste storage areas must have adequate provision in place to prevent fires.	Contractor	As necessary
General	No waste shall be retained on site for a period exceeding 14 days	Contractor	Continuous
	Containers must be emptied frequently to avoid rodents, insects or any other organisms accumulating on the site and becoming a health hazard to adjacent properties.	Construction crew, ELO	Continuous

6. CONCLUSION

Provided this project is mitigated, as per the EMP, the project will result in impacts that should not negatively affect the environment. It is the applicant's responsibility to ensure that this EMP is made binding on the contractor by including the EMP in the contract documentation. The contractor should thoroughly familiarise himself with the requirements of the EMP and appoint an environmental liaison officer (ELO) to oversee the implementation of the EMP on a day-to-day basis.

Parties responsible for transgression of this EMP should be held responsible for any rehabilitation that may need to be undertaken. Parties responsible for environmental degradation through irresponsible behaviour/negligence should receive penalties.

Key issues

- Construction should take place in the dry season (where possible), leaving enough time for the germination of seeds and revegetation of barren areas before the onset of the rainy season;
- All hazardous waste must be disposed of at the hazardous waste site and registers be kept thereof;
- Proper warning tape (e.g. orange danger nets) must be erected to inform public of the inherent dangers; and
- Should blasting activities be required on certain areas during foundations excavations, it is important the relevant permits be obtained and that the adjacent landowners are informed of these planned activities a few days in advance and that site notices informing the public are strategically placed at visible locations.

APPENDIX 2: AN EXAMPLE OF INCIDENT AND ENVIRONMENTAL LOG

ENVIRONMENTAL INCIDENT LOG				
Date	Env. Condition	Comments <i>(Include any possible explanations for current condition and possible responsible parties. Include photographs, records etc. if available)</i>	Corrective Action Taken <i>(Give details and attach documentation as far as possible)</i>	Signature

