ENVIRONMENTAL IMPACT ASSESSMENT
DRAFT BASIC ASSESSMENT REPORT

ESKOM STEELPOORT CNC
DEA REF NUMBER 14/12/16/3/3/1/1919

DRAFT
ENVIRONMENTAL MANAGEMENT PROGRAMME

OURBIOSPHERE
ENVIRONMENTAL

JULY 2018

Environmental Impact Assessment

Draft Basic Assessment Report

ESKOM STEELPOORT CNC
DEA Ref number 14/12/16/3/3/1/1919

DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

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GLOSSARY OF TERMS AND ABBREVIATIONS		
NO	TERM	DESCRIPTION
1	Contractor	A person or company appointed by Eskom to carry out stipulated activities.
2	Alien vegetation	Alien vegetation is defined as undesirable plant growth which includes but is not limited to all declared category 1 and 2 listed invader species as set out in the 1983 Conservation of Agricultural Resources Act (CARA) regulations. Other vegetation deemed to be alien are those plant species that show the potential to occupy in number any area within the defined construction area and which are declared undesirable.
3	Emissions	The release or discharge of a substance into the environment which generally refers to the release of gases or particulates into the air.
4	Emergency	An undesired event that results in a significant environmental impact and requires the notification of the relevant statutory body such as a local authority.
5	EMP	Environmental Management Programme. A detailed plan of action prepared to ensure that recommendations for preventing the negative environmental impacts (and where possible improving the environment) are implemented during the life-cycle of a project.
6	Environment	In terms of the National Environmental Management Act 107 of 1998 (NEMA), "environment" means the surroundings within which humans exist and which are made up of: (i) the land, water and atmosphere of the earth; (ii) micro-organisms, plant and animal life; (iii) any part or combination of (i) of (ii) and the interrelationships among and between them; and (iv) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

7	Environmental authorisation	An environmental authorisation or record of decision is a written statement from the National Department of Environmental Affairs (DEA) that records its approval of a planned undertaking to improve, upgrade or rehabilitate a development and the conditions of approval which may include mitigating measures required to prevent or reduce the effects of environmental impacts during the life of a contract.
8	Environmental control officer	A suitably qualified individual who on a regular basis monitors on behalf of Eskom the project compliance with conditions of the Environmental Authorisation (Record of Decision), environmental legislation and recommendations of this Environmental Management Programme.
9	Environmental impact	A change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's activities, products or services.
10	Eskom's project Manager	The Eskom appointed person who acts as the manager of the project on behalf of Eskom.
11	Incident	An undesired event which may result in a significant environmental Impact but can be managed through internal response.
12	Construction Manager	The Eskom appointed person who acts as Construction Manager and is responsible for managing the construction process on site

1. INTRODUCTION

The construction and operation and maintenance of electrical related infrastructure and activities has been proven to cause negative impacts on the environment. It is with this view that this Environmental Management Programme (EMP) is developed. The main purpose is to is to set mitigation measures that will ensure that environmental damage is prevented, minimized and rehabilitated. For the mitigation measures to be effectively implemented, proper planning and communication is essential throughout the project, specifically during the construction phase.

An EMP is a detailed plan of action prepared to ensure that recommendations for preventing the unwanted negative environmental impacts are implemented during the life-cycle of a project. The appointed contractor must understand the requirements of the Environmental Management Programme and where possible initiate environmental best practices in liaison with Eskom and other relevant stakeholders. This EMP is divided into three sections as per the project requirement: Planning and Design Phase, Construction Phase and Operational Phase.

2. OVERVIEW OF THE PROJECT

Eskom appointed Ourbiosphere to develop an EMP for the construction of the Steelpoort Customer Network Centre. The project is in the Fetakgomo-Tubatse Local Municipality in Limpopo Province.

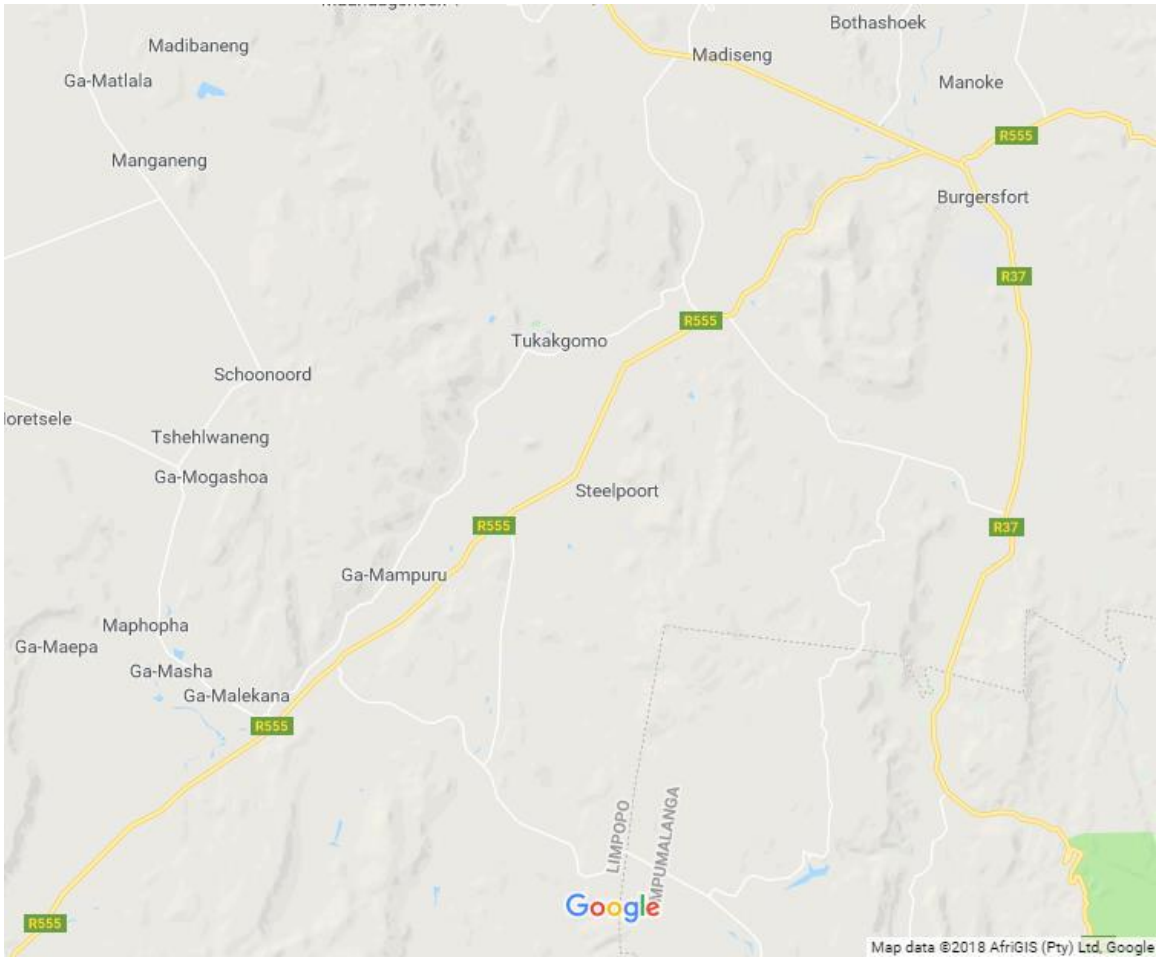
2.1 The scope of work

Eskom Limpopo Operating Unit, Land Development (Eskom) plans to construct the Steelpoort Customer Network Centre (CNC). The activity will include:

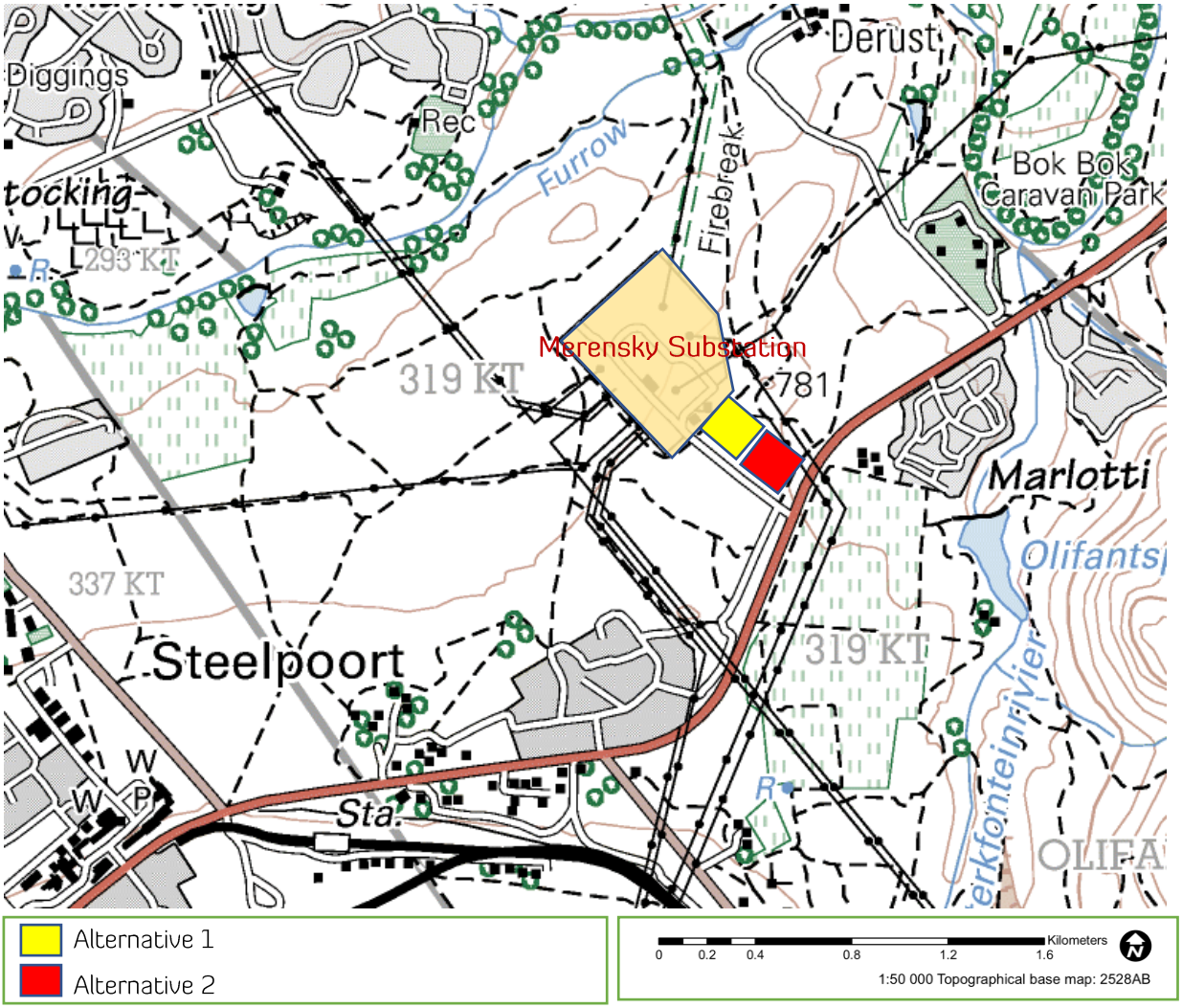
- site clearance,
- earthworks,
- paving of internal access road and parking,
- storm water management systems,
- construction of CNC office buildings,
- construction of parking bays,
- construction of transformer plinths,
- construction of vehicle wash bays,
- construction of damaged transformer leakages oil holding dam,
- construction of storeroom and guard house,
- construction of ladder rack and poles yard,
- construction of sewer and portable water network reticulation (connected to borehole and septic tank or municipal main lines),
- construction of perimeter fence.

2.2 Locality of project

The proposed Eskom Steelpoort Customer Network Centre Project is located approximately 1km to the east of the Steelpoort Town and is situated on the eastern shoulder of the R555 from Steelpoort to (Mashishing) Burgersfort. The project area is located on the southern boundary of Eskom's Transmission Merensky Substation (1:50 000 Topographical base map 2430CA_2008_ED5_GEO). The area falls within the Sekhukhune District.



Locality Map



2.3 Property descriptions

The proposed location for the site for Steelpoort Customer Network Centre is on Portion 50 of the Farm Olifantspoortjie in Steelpoort, within Fetakgomo-Tubatse Local Municipality in the Limpopo Province.

2.4 Site descriptions of Alternative 1 and 2

As part of a Master Plan to address prolonged response to power interruptions and electrical faults callouts, Eskom is planning the construct numerous customer network centres around the country. The growing need for one has been identified in Steelpoort. In Steelpoort, Eskom plans to construct a 1,1121ha.

There are two alternatives (options) sites for the CNC that were identified and investigated. Alternative 1 is the preferred option which is located at the boundary of the existing Eskom's Merensky Substation on the southern direction. On the southern direction of this lies Alternative 2.

The GPS coordinates for specific locations from the centre of the study site are as follows:

- Alternative 1 (centre point): 24°43'.16.99"S; 30°13'24.79"E.
- Alternative 2 (centre point): 24°43'.20.98"S; 30°13'.29.86"E.

(See Appendices 13.1 and 13.2) for project maps indicating the Site Alternatives.

The land use on the two site alternatives is that of un-utilised bush characterised by woodland shrubs and aloes. However, Alternative 1 has two 132 kV powerlines traversing it. Each of the 132kV powerline have a registered servitude of 31 metres, that is 15 metres from the centre of the powerline to either side. The combined servitude of the powerlines amounts to 64 metres. These servitudes get to be cleared at a determined timeframe of bush clearing every 2 to 3 years to avoid fire risk to the electrical infrastructure. There areas under these powerlines have been cleared and there is evidence of waste dumping on them. The overall study is characterised by a chain of hills and valleys.

The site Alternative 1 is dominated by a low rocky outcrops area where the vegetation is somewhat dense and in a fair condition. It was noted during the survey that there is a serious degree of wood harvesting taking place on both Alternative 1 and 2.

Study area Alternative 2 does not have any 132kv powerlines traversing through. Its woodland ground cover is disturbed by anthropogenic actions. Site alternative 2 is lying on a flat ground inkling to the south east. It also shares the slope hill to the north-eastern direction perimeter fence. There general surrounding area is characterized by many hills. There are no ridges or kloofs (steep valleys). The overall study area slopes slightly from west to east and slightly to the south. The center area is flat, with a slight slope to the north and to the south. Vegetation is predominantly short, open to closed thornveld with an abundance of Aloe species and other succulents

2.5 Co-ordinates

The alternatives for the project are found at approximately:

Alternative 1: Four Bend Coordinates

No	Longitude (Degrees Minutes Seconds)	Latitude (Degrees Minutes Seconds)
1	24° 43' 16.62" S	30° 13' 21.82" E
2	24° 43' 14.42" S	30° 13' 24.48" E
3	24° 43' 19.21" S	30° 13' 25.34" E
4	24° 43' 17.14" S	30° 13' 27.18" E

Alternative 2: Four Bend Coordinates

No	Longitude (Degrees Minutes Seconds)	Latitude (Degrees Minutes Seconds)
1	24° 43' 19.43" S	30° 13' 25.78" E
2	24° 43' 21.52" S	30° 13' 28.50" E
3	24° 43' 17.63" S	30° 13' 27.76" E
4	24° 43' 19.70" S	30° 13' 30.77" E

3. PURPOSE OF THE ENVIRONMENTAL MANAGEMENT PROGRAMME (EMP)

The main objective of the EMP is to minimize destruction of the environment resulting from the project activities. The applicant (Eskom) must take reasonable measures to protect the environment and minimize environmental impacts as required by the Duty of Care stated in section 28 of NEMA. Eskom as the holder of Environmental Authorization must also ensure that contractors conducting work on its behalf comply with environmental requirements.

The contractor must ensure that construction activities do not deviate from conditions stipulated in the Environmental Authorisation, EMP and the requirements of applicable environmental legislation. During all the phases of the project, proper monitoring, auditing and corrective actions must be implemented.

The following principles must form the basis of the construction and operational phases:

- Anticipate and prevent negative impacts on the environment. Where impacts cannot be prevented, minimisation and mitigation measures to be implemented.
- Implement a risk-averse and cautious approach.
- Prevent or minimise pollution and degradation of the environment.
- Prevent or minimise waste, reuse or recycle waste where possible and dispose of waste in a responsible manner.
- Prevent, minimise or remedy the disturbance of ecosystems and loss of biodiversity.

4. SCOPE OF THE EMP

The EMP outlines the negative impacts as well as mitigation measures associated with construction and operation. The aspects of construction and operation which may lead to significant environmental impacts have been identified and mitigation measures have been determined.

5. STRUCTURE OF THE ENVIRONMENTAL MANAGEMENT PROGRAMME

The EMP provides mitigation and management measures for the following phases of the project:

5.1. Planning and Design Phases

All relevant environmental legislation pertaining to the project is listed during this phase. The Contractor and the client must comply with the legislation during all phases of the project. This list is not exhaustive and is intended only to serve as a guideline to the Contractor.

5.2. Construction Phase

This section of the EMP provides management principles for the construction phase of the project. Environmental actions, procedures and responsibilities as required within the construction phase are specified. These specifications form part of the construction contract and the Contractor is therefore required to comply with the specifications in the construction contract to the satisfaction of the Project Manager and Environmental Control Officer.

5.3. Operation and Maintenance Phase

This section of the EMP provides management principles for the operation and maintenance phase of the project. Environmental actions, procedures and responsibilities as required by Eskom within the operation and maintenance phase are specified.

The EMP is a dynamic document which is updated as required on a continuous basis. Any amendments to the EMP must be submitted for approval prior to implementation to both the Environmental Control Officer (ECO) and Project Manager.

6. PLANNING AND DESIGN PHASE

6.1 Technical Information of the project

Eskom acquired a land in excess of 1.1121 hectares where they want to construct a Steelpoort Customer Network Centre. The physical size of the footprint/developed areas will be approximately 1 ha.

6.2 Engineering services

a) Water supply
The Water to the proposed development will be supplied from the water reticulation of the Local Municipality. Note that no construction could commence without sufficient official proof that the water supply for the development is secure.

b) Storm water drainage
A piped storm water system is proposed. A storm water management plan that conforms to the requirements of the Department of Water Affairs as well as the Local Municipality has to be compiled by a civil engineer for approval by the above-mentioned authorities.

c) Waste Management
An integrated waste management approach must be implemented that is based on waste minimisation and must incorporate reduction, recycling, re-use and disposal where appropriate. Any solid waste that cannot be recycled shall be disposed of at an appropriate landfill site licensed in terms of section 20 (b) of the National Environment Management Waste Act, 2008 (Act No 59 of 2008).

d) Electricity

There is an existing Eskom network near the proposed development. There is an availability of the required supply will to the proposed site.

e) Sewage
A chemical sewer plant will be constructed on site with a daily throughput capacity that is lower than the threshold of 2000 cubic metres. Therefore, the relevant listed activity is not triggered.

The collection of solid waste will be carried out by a private company to be appointed by Eskom for this purpose. The solid waste will be transported to the appropriate solid waste disposal site of Fetakgomo-Tubatse Local Municipality - To be advised by the Local Municipality. A letter of agreement between the developer and the Permit Holder of the waste disposal site to be kept on site.

These above measures are included as requirements in the EMP under the headings "Waste Management". Also refer to the other mitigation measures under the same headings.

6.3 Final Design

The engineering drawings must adhere to any site-specific mitigation measures supplied by the geotechnical engineer for the project to accommodate the geotechnical and earth-scientific constraints in terms of founding and construction methods, construction materials, excavation, etc.

6.4 Legislative and Other Requirements

The contractor must identify and implement applicable sections of at least the following environmental legislation:

- All provisions of the National Water Act, 1998 (Act No 36 of 1998)
- All provisions of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993)
- Civil Aviation Technical Standards (CATS)
- Conservation of Agricultural Resources Act (Act No 43 of 1983)
- Limpopo Environmental Management Act (7 of 2003), published 30 April 2004, Provincial Gazette No.997
- Minerals and Petroleum Resources Development Act, 2002 (Act No 28 of 2002) administered by Department of Minerals and Energy
- National Environmental Management Act (Act No 107 of 1998) – NEMA EIA Regulations of 2010
- National Environmental Management Air Quality Act 39 of 2004
- National Environmental Management: Biodiversity Act, 2004 (Act No 10 of 2004)
- National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) (NEMPAA).
- National Environmental Management: Waste Act (Act 59 of 2008) (NEMWA)
- National Forests Act (Act No 84 of 1998)
- National Heritage Resources Act, 1999 (Act No 25 of 1999)
- National Roads Act 7 of 1998
- National Veld and Forest Fire Act (Act No 101 of 1998)
- Protected species – provincial ordinances
- Soil Conservation Act, 1969 (Act No 76 of 1969)
- Conservation of Agricultural Resources Act 43 of 1983
- National Building Regulations and Building Standards Act 103 of 1977
- Health Act 63 of 1977
- Hazardous Substances Act 15 of 1973
- Fertilizer, Farm Feeds, Agricultural Remedies and Stock Remedies Act 36 of 1947

6.4.1. Environmental authorization

An application for environmental authorization has been submitted to the National Department of Environmental Affairs (DEA) in terms of the National Environmental Management Act 107 of 1998 (NEMA) and the Environmental Impact Assessment Regulations of 2014 (Government Notice No's R982 and R983) of December 2014. The listed activities for the proposed project are the following:

Listed Activity	Activity/Project Description
GN R.983 Activity (9): The development of infrastructure exceeding 1000 metres in length for the bulk transportation of water or storm- (i) with a diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more.	Construction of sewer and portable water network reticulation (connected to borehole and septic tank or municipal main lines),
GN R.983 Activity (10): The development and related operation of infrastructure exceeding 1000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes - (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more excluding where- such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve; or where such development will occur within an urban area.	Construction of sewer and portable water network reticulation (connected to borehole and septic tank or municipal main lines).
GN R.983 Activity (14): The development of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.	▪ Construction of transformer holding plinths. ▪ Construction of damaged transformer leakages oil holding dam
GN R.983 Activity No 27: The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for – (i) the undertaking of a linear activity; or	The overall portion size of the construction of the proposed CNC office buildings is 1.1121 hectares

(ii) maintenance purpose undertaken in accordance with maintenance management plan	
GN R.983 Activity No 28 Residential, Mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or *(ii) will occur outside an urban area, where the total to be developed is bigger than 1 hectare;* excluding where such land has already been developed for residential, recreational, mixed, retail, commercial, industrial or institutional purposes.	The proposed development is located outside the urban area and the area does not have any development.

Listed below are some of the possible permits and licences that may be required:

Table 1: Environmental Permits and Licenses:

Potential Activity	Relevant Applicable Legislation
To destroy, damage, deface, alter, remove or destruct any national and provincial heritage sites, archaeological and palaeontological sites, burial grounds and graves and public monuments and memorials	National Heritage Resources Act (No 25 of 1999)
Disturbing, cutting, pruning protected or indigenous vegetation; or any protected tree	National Forests Act (No 84 of 1998), National Environmental Management: Biodiversity Act, (No 10 of 2004) Provincial Ordinances Taking water from a water resource
Impending or diverting the flow of water in a watercourse	The National Water Act (No 36 of 1998)
Storing of water	The National Water Act (No 36 of 1998)
The National Water Act (No 36 of 1998)	The National Water Act (No 36 of 1998)
Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people	The National Water Act (No 36 of 1998)
Disposing of waste in a manner which may detrimentally impact on a water resource	The National Water Act (No 36 of 1998)
Use of treated wastewater	The National Water Act (Act No 36 of 1998)
Ablution facilities/ chemical toilets	Local By-laws, Provincial standard By-laws

The contractor must keep a permit matrix listing the type of permits and their validity periods in the construction site Environmental File. The permit matrix must be updated as and when required. The conditions prescribed in the permits must be adhered to.

6.5 Tender Stage

The EMP and Environmental Authorization must form part of the documentation issued at tender enquiry stage. Environmental tender evaluation must be conducted to ensure that the tender submissions include, amongst others, financial and human resources for proper implementation of environmental requirements.

6.6 Contract Award

The contractor has to acknowledge receipt and understanding of the EMP and Environmental Authorization. The EMP and Environmental Authorization must form part of the Contract Award Documentation issued by the Client.

7. CONSTRUCTION PHASE

7.1 Main Activities During Construction Phase

7.1.1. Survey Pegging of the construction site

During pegging in areas where there is a possibility of finding sensitivities as identified during the EIA or Basic Assessment, the relevant specialist (Botanical, Heritage, and Avifaunal) must form part of the pegging team to identify where permits and licenses are required. Relevant licenses and permits must be obtained before construction activities can commence in a specific area. All the pegging surveyor must not use pangas to clear their way on protected trees.

7.1.2. Excavation

Excavation has to be done in such a way that the top soil layer is scrubbed and stored separately from the sub soil. The top layer soil normally contains seeds and useful rehabilitation material for use when the construction activity is completed. Employees who carry out the excavation activity have to be well informed of soil separation. To avoid animals from falling into the excavation, excavations of half a meter and more have to be barricaded properly.

7.1.3. Concrete Mixing, Pouring and Foundation Creation

Concrete mixing must never be done on bare land. The land surface has been protected from the negative impact that may arise due to concrete mixing activities. Concrete pouring activity to be done in such a way that unnecessary concrete spillages are avoided. If concrete spills occur, the affected areas must be rehabilitated immediately. Cleaning of concrete mixer chutes only to be done in such way that it does not cause pollution or concrete spillages on to the ground.

7.1.4. Rehabilitation of the disturbed areas

A rehabilitation method statement must be developed and signed off by the ECO. Where seeds are bought and used for rehabilitation, species endemic to the area must be used. The local Department of Agriculture can be consulted for advice on which species to use for

rehabilitation. It is suggested that rehabilitation be done in phases, commencing with the section where construction activities are first completed rather than waiting for the last section to be completed. This will facilitate the signing off by landowner(s) while the contractor is still on site and where the landowner(s) are not satisfied, the contractor can rehabilitate the area while still on site.

7.2 Roles, Responsibilities and Reporting

7.2.1 Eskom

Eskom is the project proponent and therefore has the overall responsibility to ensure that the construction activities comply with requirements of the Environmental Authorization, Environmental Legislation and any other applicable legislation. Eskom must have processes in place to ensure that at least the EMP and Environmental Authorization are issued during tender enquiry. Eskom must periodically audit the contractors who work on their behalf to verify compliance with environmental specifications and must appoint an independent Environmental Control Officer (ECO) prior to commencement of construction (if stipulated in the Environmental Authorization). DEA must be notified of such an appointment.

The SECO (Site Environmental Control Officer) (contact person: Ms. Munzhedzi Mudau, Environmental Management, Eskom Limpopo Operating Unit (Tel 015 299 0498/ Cell 076 988 8169) and ECO must inspect the construction site on a regular basis (during pre-construction, construction and post-construction periods) to confirm the current state of the site and to ensure that the mitigation and rehabilitation measures as specified in the EMP are applied. These officers may make reasonable amendments to the EMP in co-operation with the contractor.

7.2.2 Contractor Roles and Responsibilities

The role of the contractor entails the implementation of Environmental Requirements during construction. Amongst others, the contractor must:

- Appoint and designate a person responsible for managing all requirements of the construction EMP and applicable environmental legislation.
- Audit the subcontractors to determine compliance against environmental requirements.
- Ensure environmental awareness among his employees, sub-contractors and workforce so that they are fully aware of and understand the Environmental Requirements for implementation on site;
- Ensure that daily risk assessments conducted on-site include environmental risks that may arise due to the daily construction activities being carried out;
- Ensure that monthly SHE meetings include environmental topics for discussion or separate environmental monthly meetings are conducted where environmental issues can be discussed. Environmental performance must be tracked in these meetings;
- Implement the requirements of the EMP throughout the construction period.
- Keep construction records and reports related to environmental work, for instance, public complaints register, incident register, inspection reports, method statements, environmental induction records etc;
- Maintain a register of environmental training for site staff and sub-contractor's staff for the duration of the contract;

- Notify the ECO and the Client in the event of any accident or deviations to Environmental Requirements and ensure that proper remedial action is taken;
- Rehabilitate all the areas disturbed by the construction activities;
- Site-specific measures in terms of ecology as identified by the ecologist BioAssets must be included in the contract and implemented by the Contractor during the construction phase. These measures are included in this EMP of the BAR.
- The Contractor is responsible for ensuring that subcontractors are aware of their environmental responsibilities while on site or during the provision of their services.
- The Contractor must be familiar with the contents of the EMP and be knowledgeable about the legislative requirements for the construction works and ensure that work does not commence without the appropriate permits and licences being obtained or provided by the client.
- The Contractor must ensure that all sub-contractors and other workers appointed by the Contractor comply with and implement the construction EMP during the duration of their specific contracts.
- The Contractor must prepare Method Statements, layout plans, drawings for related activities and submit these for approval or acceptance by the Client and/or the ECO.
- The Contractor's Project Manager must assign the appropriate authority, accountability and responsibility to these personnel to carry out their duties.
- Undertake daily site inspections to monitor environmental performance and conformance with the Environmental Specifications;
- Undertake rehabilitation of all areas affected by construction activities to restore them to their original or satisfactory state;

7.2.2.1 Sub-Contractor Management

It is the responsibility of the principal/main contractor to manage and monitor the activities of all the sub-contractors to ensure compliance with the EMP, Environmental Authorisation and applicable Environmental Legislation. The agreements between the principal contractor and subcontractor have to include environmental requirements implementation. The principal contractor has to monitor the activities of the sub-contractor during, amongst others, site inspections and audits.

7.2.3 Environmental Control Officer

Some of the roles and responsibilities of the Environmental Control Officer include the following:

- Act as the main point of contact between the regulatory authorities and the project on environmental issues.
- Conduct inspections and audits as per environmental authorization requirements.
- Liaise with the landowners on any construction related complaints that might arise.
- Monitoring construction activities performance to confirm that identified control measures are effective.

- Signing off or acceptance of method statements for adequacy prior to work commencing.
- The ECO must liaise with an appointed contractor's personnel responsible for environmental management and/or attend site meetings where applicable and inspect the construction site on a regular basis to ensure that the mitigation and rehabilitation measures are implemented.
- The ECO will remain employed until all rehabilitation measures are completed, and the site is handed over by the contractor to Eskom for operation.

- The key responsibility of the ECO is to monitor compliance with all the conditions stipulated in the Record of Decision/Environmental Authorisation (EA), environmental legislation and the recommendations of the EMP.

7.3 Environmental Documentation and Record Keeping

The following minimum documents and records have to be kept on sites:

- Appointment letters and Curriculum Vitae of the contractor's environmental officer or SHE officer who is responsible for the implementation of the environmental requirements for that project
- Aspects/Impacts register
- Copy of the Environmental Authorisation
- Environmental Management System Certificate (if certified). If not, an environmental management system manual and or procedures
- Hazardous Substances registers and MSDS (Material Safety Data Sheet) (where applicable)
- Incident registers and investigation reports
- Licences and permits
- List of all hazardous substances to be used on site and their material safety data sheets
- Non-conformance register
- Project Specific Environmental Management Programme
- Proof of training (certificates) of persons performing activities that can have significant impact on the environment (e.g. application of herbicides)
- Public Complaints register
- Records of audit reports and audit findings close out (where applicable)
- Records of site inspections conducted
- Waste disposal register

7.4 Appointment of Environmental Control Officer (ECO)

An independent ECO must be appointed well in advance to introduce the project to the landowners and to ensure that all landowner agreements are drafted and signed prior to construction commencing. The Department of Environmental Affairs must be notified of such appointment. The notification has to include ECO details as required by the Environmental Authorization (an example of the notification is included on the next page).

APPOINTMENT OF ENVIRONMENTAL CONTROL OFFICER (ECO) DETAILS OF PERSONS RESPONSIBLE FOR IMPLEMENTATION OF THE EMP

The following undertaking must be filled out and signed by the applicant and forwarded to the Department of Environmental Affairs (DEA) prior to commencement of construction:

AGREEMENT & UNDERTAKING OF THE APPLICANT

I hereby confirm and state that I am aware of the contents of the Environmental Management Programme and the conditions of the Environmental Authorisation (EA) and shall comply with all legislation pertaining to the nature of the work to be done and all things accidental thereto.

Signed on behalf of:

Date:.....

Place:.....

Signature: .....

Full Name:.....

Physical Address:.....

Postal Address: .....

Office Telephone Number:.....

Email address:.....

AGREEMENT & UNDERTAKING OF THE ECO

The following details of the Environmental Control Officer (ECO) must be filled out, signed and forwarded to DEA prior to construction:

Company Name: .....

Contact Person(s): .....

Physical Address: .....

Postal Address: .....

Office Telephone Number: .....

Cellular phone Number: .....

Fax Number: .....

Email address: .....

7.5 Environmental Induction

- Records of environmental induction have to be kept and the induction content has to be kept and updated when necessary. Visitor's induction has to be conducted for any visitor to the construction site.

- The Contractor's environmental officers or responsible person must conduct environmental induction to all the personnel on site.
- The induction must include amongst others, the requirements of this EMP. Where possible, the induction has to be conducted in a language that the general employees can understand, or measures have to be taken to ensure that all the employees understand what is required of them to reduce environmental impact and ensure compliance.

7.6 Development of Method Statements

- Activities can only commence after the Method Statement has been accepted by the Environmental Control Officer and approved by the Site Manager or Project Manager.
- Method Statements are required for every significant construction activity undertaken on site.
- Non-conformances identified must be actioned and closed out.
- Regular monitoring, inspecting and auditing against compliance with Method Statements must be conducted.
- The contractor environmental officer or responsible person must develop method statements for activities that will be carried out.
- The method statements have to at least indicate the activity to be conducted, resources to be used, how the activity will be conducted, and possible environmental impact and mitigation measures.
- The method statements have to be developed prior to any activities taking place. Employees and sub-contractors undertaking a task governed by a method statement must be trained on that particular method statement and have to read and/or understand their obligations prior to commencing work.
- The requirements of the EMP, Environmental Authorisation and relevant Environmental Legislation must be considered when developing the method statement.

7.7 Site Establishment

- Any selected temporary site (accommodation and storage) preferably must be on the demarcated site itself.
- Encourage the construction contractor to employ local people as far as is reasonably practical and encourage the contractor to transport them daily to and from site. This will reduce solid and liquid waste production and water demand at the site camps.
- If at all viable, accommodation for the construction workers to be rented in the nearest town. Sewage disposal will therefore be through the Municipality's main sewer line. If accommodation in a construction camp is unavoidable, then the measures as stipulated in the EMP must be adhered to.
- No area for a campsite or temporary storage site should be selected where it would be necessary to cut down any trees or clear any shrub land whatsoever, not even alien species.
- The Contractor has to identify an environmental less sensitive area suitable for site establishment. This includes areas which will be used for material layout, offices, camps etc.
- Contractors have to develop a comprehensive site camp management plan. This has to apply even in the case of the limited accommodation camps discussed above.
- The sites have to be properly demarcated and fenced.

- Legible signage indicating the project details should be placed on site.
- Site Establishment layout map has to be submitted to the ECO together with the method statement for acceptance.
- Prior to site establishment, Eskom and the Contractor have to determine whether rezoning is required in terms of local by laws in the area and ensure that the size of the area intended to be used is either authorised or does not fall within the regulated limits as per EIA regulations.
- Designated eating and smoking areas have to be identified. Where possible, smoking has to be prohibited. If not, smoking areas have to be located in places where there is less risk of fire.
- Cigarette butt containers have to be placed next to the designated smoking areas. This is to avoid littering that may occur on site. A fire extinguisher or fire beaters must be placed next to the smoking areas.
- Potable water that complies with SANS Standards must be provided for drinking and cleansing purposes.

7.8 Ablution Facilities

- Adequate ablution facilities, toilets and change rooms must be provided on site in terms of the National Building Regulations and Building Standards Act.
- All drainage pipes from ablution facilities, toilets, hand wash basins, sinks, showers, etc must be connected either to the municipal sewer system or septic tanks and French drains. The septic tanks and French drains must be approved by the Department of Water Affairs
- Chemical toilets must be easily accessible by the employees but have to be placed away from natural water resources.
- If mobile chemical toilets are used, the contents thereof must be disposed of regularly at an approved sewage treatment facility, permission for which must be obtained from the relevant local municipality.
- No use of the veld to be allowed as this results in pollution and landowner complaints and claims.
- Portable toilets must be secured to prevent them from being blown over in windy conditions.
- Proof of sewage disposal and quantities disposed to be kept. The sewage/contents of the chemical toilets to be disposed at a licenced sewage treatment facility.
- Proof that the toilets are being serviced to be kept on site.
- Regular inspections to be done to ensure high hygiene standards. Employees to be sensitised to use these toilets at all times.
- These portable toilets to be administered and serviced by a certified, registered company only.
- Toilets to be provided with a ratio of one for every 15 workers.

7.9 Material Storage Areas and workshop areas

- Laydown areas for material storage must comply with rezoning requirements of the local municipality.
- Material and equipment must be stored in areas demarcated for storing such items. Drip trays must be placed underneath stationery machinery.
- Maintenance of machinery to be done off site where practical; if that is impossible, maintenance to be done at an area demarcated for workshop. Such an area should not be permeable.

- During servicing of vehicles or equipment, a suitable drip tray to be used to prevent spills.
- Drip trays always have to be intact, without holes, not damaged or flattened. This will ensure adequate containment of spills.
- The drip trays to be emptied daily. Inspections to be conducted regularly to identify and clean oil spillages that may have occurred.
- Oil from the machinery never to be drained on to the surface, but to be placed in containers that close properly to avoid spillage.
- Oil spill kits always to be placed at accessible areas next to the workshop. The contents of the oil spill kits have to be sufficient to clean areas contaminated with oil spills should they occur.
- Heavy vehicles/machinery in the construction site to be inspected daily. An inspection check sheet to include all the applicable environmental parameters relating to pollution prevention. All oil leaking vehicles to be maintained.
- Stacking and Storage areas will be clearly demarcated with proper signage. Firebreaks will be created around all storage areas.
- Storage and handling of fuels, lubricants, paint, tar, bitumen binders and other chemicals must be done in especially demarcated impervious and bunded areas.
- The material laydown area to be properly fenced and access control to be implemented.

7.10 Access Roads and Access Control

- "No Entry" signs to be placed in areas where the use of such roads is prohibited.
- Access roads to be clearly marked, markers must show the direction of travel to which the road leads.
- Access to the camp site and layout areas and construction site to be controlled. Visitors have to be inducted prior to accessing the construction site.
- All agreements reached to be documented in writing and no verbal agreements to be made.
- All construction vehicle drivers to be inducted on the importance of conforming to the identified roads.
- Care should be taken to minimise the impact that may be caused by heavy vehicles.
- Dust creation to be minimised and mitigated, especially in instances where such can cause nuisance.
- Identification and planning of access routes to be used must be done in conjunction with the Contractor, Eskom and the Landowner.
- Private access roads always have to be properly maintained if required or as per agreement with the landowner(s).
- The condition of existing roads to be used shall be documented with photographs where practical.
- Water diversion berms have to be installed from the commencement of the contract. These berms to be maintained at all times and be repaired at the end of the contract.
- Where new access roads are created, scrubbing and vegetation destruction to be avoided or minimised.

7.11 Earthworks and Layer works

This section includes all construction activities that involve the mining of all materials and their subsequent placement, treatment or batching. The Contractor has to take cognisance of the requirements set out below.

7.11.1 Quarries and borrow pits

The Contractor's attention is drawn to the requirement of the Department of Minerals and Energy, that before entry into any quarry or borrow pit, an EMP for the establishment, operation and closure of the quarry or borrow pit has to be approved by the Department. It is the responsibility of the Contractor to ensure that he is in possession of the approved EMP or a copy thereof, prior to entry into the quarry or borrow pit. The conditions imposed by the relevant EMP are legally binding on the Contractor and may be more extensive and explicit than the requirements of this specification. In the event of any conflict occurring between the requirements of the specific EMP and these specifications the former shall apply.

7.11.2 Stockpiles

The Contractor has to plan his activities so that materials excavated from borrow pits and cuttings, in so far as possible, can be transported directly to and placed at the point where it is to be used. However, should temporary stockpiling become necessary, the areas for the stockpiling of excavated and imported material have to be indicated and demarcated on the site plan submitted in writing to the engineer for his approval, with the Contractor's proposed measures for prevention, containment and rehabilitation against environmental damage.
The areas chosen must have no naturally occurring indigenous trees and shrubs present that may be damaged during operations. Care to be taken to preserve all vegetation in the immediate area of these temporary stockpiles. During the life of the stockpiles the Contractor at all times has to ensure that they are:

- Constructed and maintained so as to avoid erosion of the material and contamination
- Kept free from all alien/undesirable vegetation.
- of surrounding environment; and
- Positioned and sloped to create the least visual impact;

After the stockpiled material has been removed, the site has to be re-instated to its original condition. No foreign material generated/deposited during construction to remain on site. Areas affected by stockpiling to be landscaped, top soiled, grassed and maintained at the Contractor's cost until clearance from the engineer and the relevant National Authority is received.

7.12 Identification and Management of Environmental Sensitive Areas

- Sensitive areas such as heritage sites, wetlands, nesting areas of protected bird species etc have to be identified in the early stages of the project.
- Such areas to be clearly marked as no-go areas and environmental induction has to emphasise the importance of complying with these requirements. (The environmental sensitivity map(s) indicates sensitive environmental areas and features identified in the activity area. (Sensitivity map(s) included in Appendix A of the BAR).
- No authorised construction or activities within demarcated sensitive areas as per sensitivity maps.
- Any activities identified within unauthorised sensitive areas to be halted immediately and reported

- No construction related activities outside of the construction area of the powerline or substation site.
- Any construction related activities identified outside of the construction area to be halted immediately and reported.

Sensitivities are:
- One Schlerocarya birrea trees
- Aloes
- Europhobia's

7.13 Waste Management

The National Environmental Management: Waste Act stipulates requirements for waste generators and waste management.

- All waste to be disposed in licensed landfill site which is permitted to handle such waste. Proof of waste disposal of uncontaminated waste and safe disposal certificate for hazardous waste must be kept on site.
- An integrated waste management approach must be implemented that is based on waste minimisation and must incorporate reduction, recycling, re-use and disposal where appropriate. Any solid waste shall be disposed of at a landfill licensed in terms of section 20(b) of the National Environment Management Waste Act, 2008 (Act 59 of 2008).
- Service providers who are responsible for removing waste on site, waste such as hazardous waste, sewage, chemical toilets, used oil etc to provide the contractor with route plan of the roads used from site to the disposal facility, emergency preparedness procedure, proof that the vehicle drivers are trained on emergency preparedness, copy of permits/licence of the waste facility that will be receiving the waste. The vehicles used to be inspected by the contractor to verify if they comply with the requirements of the National Road Traffic Act.
- The bins to be clearly labelled or colour coding can be used to ensure separation and proper management of waste.
- The contractor has to put effort in waste recycling initiatives. Improper disposal of waste must be avoided as it can lead to legal contraventions. Littering on site is not allowed.
- The contractor to provide proper waste receptacles with lids. The waste bins to be monitored so as not to overflow.
- These containers need to close securely to avoid items (e.g. paper and plastic) from being blown into the veld or being pushed over and rummaged through by wild animals.
- Under no circumstances may solid waste be burned on site unless in a licenced incinerator.
- Waste must be separated at source, according to waste type. For instance, general waste to be separated from hazardous waste.
- Waste types generated must be identified, and the handling and disposal of such waste to be clearly indicated.

7.14 Plant Rescue and Protection Plan

- A 5m buffer zone (no-go zone) around the two identified camelthorn trees to be implemented. Orange barrack netting to be erected around these trees and maintained during the entire construction phase.
- An herbicide register indicating the incoming and outgoing substances/quantities must be maintained.
- All trees and vegetation cleared from the site to be cut into manageable lengths and neatly stacked. These can then be disposed, given away to the local communities or used in any other way that does not pose risk to environmental management.

- Application has to be under the direct supervision of a licenced applicator. Herbicides to be handled and managed in the same way as hazardous substances.
- Certain plant species are protected and/or endangered in terms of the National Forest Act, the National Environmental Management: Biodiversity Act and Provincial Ordinances. Special care to be taken not to damage or remove any such species unless a permit has been obtained from the relevant Authority to do so.
- Cleared vegetation cannot be left lying along the servitude or construction site. Big trees to be cut manually and care to be taken not to cause major damage to the environment.
- No plants are to be removed unnecessary. During the digging of holes, all topsoil (top 30cm) to be placed on one side and used again as the final soil layer when holes are closed up after construction, preferably in the same holes or immediate vicinity where it originated from.
- No trees above 2m on the selected CNC site may be removed without written consent from a botanist or ecologist. Protected trees do occur on the sites.
- Only locally indigenous trees to be planted on CNC site (if landscaping is to be done). 7.15 Vegetation Management
- Plants not interfering with the construction activities have to be left undisturbed. Collection of medicinal plants is prohibited.
- The possibility of leaching into the surrounding environment always has to be avoided and only environmentally friendly herbicides to be used.
- The protected trees identified and applications for trimming, cutting and removal must be acquired before the clearing of the construction site can commence. Communication regarding protected species that will not to be removed but are close enough to the construction activities has to be made so that this vegetation is not tampered with.
- The use of herbicides will only be allowed after a proper investigation into the necessity, the type to be used, the long-term effects and the effectiveness of the agent.
- Valid tree permits to be obtained if protected trees are identified within construction area.
- Vegetation clearing to be kept to a minimum, and only to be done when it is absolutely necessary to do so.

The contractor responsible for vegetation clearance has at least to comply with the following requirements:

- The contractor must also be able to identify declared weeds and alien species that can be totally eradicated.
- The contractor must be in possession of a valid herbicide applicators licence, in instances where herbicides will be applied.
- The contractor or subcontractor used must have knowledge to identify protected species

7.16 Alien Invasive Management Plan

- All invasive species have to be removed, as stipulated by CARA (Act No 43 of 1983), and an on-going monitoring programme implemented. This monitoring plan can be incorporated into the routine inspection activities.
- Ensure that all activities adhere to the Eskom Guidelines for Herbicide use.
- Ensure that contractors and practitioners adhere to Eskom Guidelines for Herbicide use.
- No herbicides to be used on aliens. Aliens to be removed mechanically.
- No weeds to grow in disturbed (rehabilitated) soils

7.17 Hazardous Substances

- All hazardous substances transported to and from the site to be transported with care.
- Hazardous substances to be placed in an impermeable area, which is properly bunded.
- A register of all hazardous substances to be kept and updated. Flammables and non-flammable substances to be stored separately.
- Flammable substances to be stored where there is enough ventilation. Access to all containers / storage facilities to be controlled.
- Hazardous substance containers to be clearly labelled.
- The labelled side not to be obscured.
- Drip trays to be placed underneath the containers of hazardous substances as a precautionary measure to prevent leaks onto the surface.
- Containers in which hazardous substances are decanted to be properly labelled to avoid unintended use.
- Areas to be monitored for spills and any spills will be contained, cleaned and rehabilitated immediately. Any leaking containers to be removed from Storage areas.
- Proper signage depicting "No smoking", "No flames", etc to be displayed on the flammable substance storage areas.
- Material Safety Data Sheets to be placed at the hazardous substance storage areas as well as at the point of use. Employees using these substances have to be trained on the MSDS and on the relevant method statements.
- Where possible, refuelling of machinery and vehicles to be done at filling stations. In instances where this is not possible, fuel tanks to be erected as per the requirements of the local municipality if any.
- Refuelling at these storage tanks to be done at a concrete refuelling pad or protected surface and a spill collection tray must always be used to avoid spills to contaminate the refuelling surface underneath.
- A flammable substance storage certificate must be obtained from the local municipality, depending on the quantities to be stored and or the requirements of the local municipality.
- Storage and handling of fuels, lubricants, paint, tar, bitumen binders and other chemicals must be done in especially demarcated impervious and bunded areas.
- Bund walls must be constructed to contain 110% of the contents should a spillage occur. The bund walls should not be permeable.
- Clear signage must be displayed at the fuel tanks. This has to include prohibition signs and storage capacities of the fuel tanks. MSDS to be placed at an easily accessible area next to the fuel storage tanks.
- Oil spill kits to be placed at the areas where there is a high risk of fuel spillages. The contractor employees must be trained on how to use the oil spill clean kits. Fire extinguishers must be placed at the areas with the risk of fire.
- Certain of the contractor employees must be trained on how to use the fire extinguishers.
- A register of all the fire extinguishers available on site to be maintained. The fire extinguishers have to be regularly inspected and serviced.

7.18 Spillages

- Water resources have to be protected from direct or indirect spillage of pollutants such as refuse, garbage, cement, concrete, sewage, chemicals, fuels, oils, aggregate, wash water, organic materials and bituminous products.
- In the event of a spillage during the construction phase, Eskom is responsible for spill treatment and Eskom is liable to arrange for competent assistance to clear the affected area.

- Eskom has to compile and maintain environmental emergency procedures, to ensure that there will be an appropriate rapid response to unexpected or accidental environmental related incidents throughout the life cycle of the project.
- The individual responsible for, or who discovers a hazardous waste spill must report the incident to the Engineer.
- The Engineer has to assess the situation in consultation with the SECO and act as required in all cases, the immediate response will be to contain the spill. The exact treatment of polluted soil/water has to be determined by die Engineer in consultation with the SECO. Areas cleared of hazardous waste have to be re-vegetated.
- If water downstream of the spill is polluted and fauna and flora show signs of deterioration or death, specialist hydrological or ecological advice must be sought for appropriate treatment and remedial procedures to be followed. The costs of containment and rehabilitation will be for Eskom's account, including the costs of specialist input.
- During an emergency situation, the following will apply
- No person to be allowed to approach a spill unless he/she is equipped with the personal protective clothing.
- The risk involved to be assessed before anyone approaches the scene of the incident with the emergency response plan.
- A written report has to be forwarded to the relevant environmental authority within 24 hours of the incident.

7.19 Water Use and Storm Water Management

- A storm water management method statement must be developed and approved for use.
- Conditions listed in the permits have to be complied with and proof of such compliance has to be kept on site and be made available to the Authority if so required. Records of water abstraction have to be kept on site as well as records of water used for dust suppression.
- Erosion protection and sediment traps have to be placed at storm water outfalls from the camp where appropriate.
- In all cases, abstraction of water for construction purposes requires a permit from the Department of Water Affairs unless pre-existing rights are purchased from landowners.
- The contractor has to determine whether a water use licence, or a General Authorisation is required for the abstraction of water used for construction purposes or office related use prior to the commencement of such abstraction. Such permits to be obtained and kept on site.
- The storm water discharge points must be inspected regularly especially during the rainy season.
- The use of water from natural resources, whether surface or groundwater, without the required permits is not allowed.
- The water used to supply the site with potable water to be delivered to the site in applicable water tankers.
- Water diversion berms have to be built immediately after creating new roads.
- Water outlets have to be made at intervals where berms are installed and suitably stone pitched if required.
- Where these are damaged, they have to be repaired to avoid soil erosion.

7.20 Batching Plant/Mixing of cement

- All wastewater and runoff from batching areas have to be controlled.
- Batching Plant to be located in disturbed areas or areas with low environmental sensitivity.
- Contaminated wash-water resulting from cleaning activities of equipment and flushing of mixers to be done in a way that does not cause pollution.
- In instances where ready mixed concrete is sourced, the concrete mixer vehicles have to be equipped with tools that can be used in case of an emergency such as concrete spillages. The concrete mixer vehicle drivers to be trained on the applicable emergency preparedness method statements or procedures. The cleaning of concrete mixer vehicle chutes in a manner that will contaminate the environment is not allowed.
- Methods to prevent excessive dust pollution from spreading during the batching activities have to be investigated and implemented.
- Mixing of cement, concrete, paints, solvents, sealants and adhesive must be done in specified areas on concrete aprons or on protected plastic linings to contain spillage or overflows onto soil to avoid contamination to underground water and environmental damage.
- No batching activities to occur on unprotected ground. Care should be taken to ensure that effluent from concrete batch plants does not cause surface or ground pollution.
- The design of a batching plant facility has to be approved by the ECO prior to establishment of such a facility.
- Unused cement bags must be stored in such a way as not to be affected by rain or runoff.
- Waste concrete and cement sludge to be removed off the site of the batching plant daily and disposed-off appropriately as and when required.

7.21 Signage on site

- No heritage resources have been identified No-Go Areas have to be identified prior to activity commencement at any locality. For instance, areas of heritage importance, nesting areas for sensitive birds, wetlands, protected trees which the project activities can impact on, etc have to be identified in advance and proper signage indicating such areas as No-Go Areas have to be placed.
- Protected trees were found directly within the demarcated zones of the site alternatives for the proposed project. A 5m buffer zone (no-go zone) around the two identified camelthorn trees to be implemented. Orange barrack netting to be erected around these trees and maintained during the entire construction phase.
- Relevant to this project the following:
- The No-Go Areas register must be developed and updated as necessary and these areas have to form part of the induction content. Further signage to be placed at all the campsites, material laydown areas, and batch plants (if established outside the main office areas)

7.22 Landowner/community Liaison

- A copy of this EMP has to be submitted to relevant landowners if they request it. They can assist Eskom in assuring that the contractor adheres to rules as stipulated and that mitigation and rehabilitation measures are applied.
- Access roads and any other land uses such as camp sites and laydown material areas to be agreed upon with the landowner(s).
- All manmade structures to be protected against damage at all times and any damage to be rectified immediately.

- If necessary some repairs have to be done to prevent damage to equipment and plant.
- The applicable Emergency telephone numbers should always be available on site. Eskom's Environmental Officer Advisor, Ms. Munzhedzi Mudau, Environmental Management, Eskom Limpopo Operating Unit, is the relevant contact person (Tel 015 299 0498/ Cell 076 988 8169).
- The community has to be informed of the commencement date of construction as well as the phases in which the construction will take place.
- The construction activities have to be properly planned to cater for disruptions that might be caused by rain and very wet conditions.
- The contractor has to conduct regular site inspections and good control over the construction process during the construction period.
- The Contractor must adhere to conditions stipulated in the landowner's agreement documents and any other special conditions that have been agreed to with the landowner and signed off by the parties involved.
- The contractor must ensure that the landowner(s) are satisfied with rehabilitation work and must ensure that the landowners sign off release documentation as required.

- The ECO and contractor representative or land liaison officer have to liaise with landowners and the affected community before construction activities commence.
- Where existing roads are in a bad state of repair, such roads' condition has to be documented before the roads are used for construction purposes.

7.23 Fire Prevention

- A firebreak has to be created in high risk areas such as camp sites and material storage areas.
- Contractor employees to be trained on fire fighting and fire emergency drills have to be done to determine readiness in case of emergency.
- Firefighting equipment to be placed at strategic areas relevant to the points where cooking fires are allowed.
- The contractor has to take all reasonable and appropriate steps to avoid increasing the risk. Daily Risk Assessments and or Toolbox Talks also to indicate the importance of abiding by the rules of not making open fires.
- The statutory requirements of provincial ordinances, municipal by-laws and the National Veld and Forest Fire Act 101 of 1998 have to be complied with. Cooking fires can only be made in controlled designated areas that are assessed prior to use.
- To minimise the risk of veld fires, no open fires are allowed on site, except under strictly controlled conditions.

7.24 Dust Control

- Appropriate dust suppression techniques must be implemented on all exposed surfaces to minimise and control airborne dust. Such measures must be including wet suppression, chemical stabilisation, the use of a wind fence, covering surfaces with straw chippings and re-vegetation of open areas.
- Construction activities have to be conducted in such a way that dust is minimised. The neighbouring property owners have to be informed of any blasting activities which may affect them due to dust generation.
- Dust suppression measures have to be taken. The introduction of speed limits to be looked into as a way of minimising dust in dusty access roads.

7.25 Noise Pollution

- Construction activities will mostly occur during the day.
- In instances where work has to continue during the night and where noise may cause a nuisance to the neighbouring property owners, the contractor has to inform the property owners in advance.

7.26 Emergency Preparedness

- Clear lines of communication to be established and communicated to employees for use should such emergencies occur.
- Emergency contact details for the different potential emergencies to be displayed in several strategic areas.
- Emergency drill report must be developed and filed, and areas of improvement must be identified and improved upon.
- Emergency drills to be done; the contractor must establish the frequency at which the drills must be done.
- The contractor has to identify all possible emergency situations that might occur during construction activities.
- The contractor must determine whether the emergency telephone numbers displayed are correct and operational. Actions to be taken in the event of different types of emergencies to be made clear to employees.
- The emergencies identified have to include environmental related emergencies.

7.27 Environmental Incident Management

- Environmental incidents to be prevented. In instances where they occur, the reporting requirements as per the related environmental legislation and or the client's procedural requirements to be adhered to.
- Areas contaminated by incidents have to be rehabilitated. Recording of incidents to be done as per procedure requirements.
- The contractor has to aim at preventing or and reducing incident occurrence on site.

7.28 Avi-fauna

Habitat destruction

- Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff. It is difficult to mitigate properly for this as some habitat destruction is inevitable.
- The construction activities must be restricted to the actual footprint of the development. Measures must be put in place to ensure that construction personnel are prevented from accessing the property outside the actual construction site. Care must be taken to ensure that the habitat destruction is kept to what is absolutely necessary for the construction of the CNC.

7.29 Soil Erosion

Construction activities have to be well managed to prevent erosion and the following is relevant:

- All cleared areas must be ripped and rehabilitated after construction. The top 200mm layer of topsoil must be removed and stockpiled in small heaps and replaced on the construction areas once the activities have been completed. The affected areas have to be replanted with a grass mixture indigenous to the area.
- Indigenous vegetation that does not interfere with the construction activities, to be left undisturbed.
- The eradication of any alien vegetation to be followed by replacement with indigenous vegetation as soon as possible to ensure quick and sufficient coverage of exposed soil.
- Trees or existing grass strata outside of the construction corridor not to be removed as they will reduce the destructive force of water which can cause erosion.
- Unnecessary clearing of flora resulting in exposed soil prone to erosive conditions to be avoided.

7.30 Management of Heritage Resources

- Eskom to be notified of the archaeological finds as soon as possible.
- Heritage sites identified during the impact assessment have to be clearly marked on the profiles. Such areas to be marked as no-go areas.
- If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, marine shell and charcoal/ash concentrations), unmarked human burials, fossils or other categories of heritage resources are found during the proposed activities, construction activities have to be halted immediately.
- If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation might be necessary.
- No heritage sites were identified within the demarcated zones of the powerline corridors.

7.31 Environmental Monitoring and Reporting

- Environmental monitoring at the least, has to be done in terms of the requirements of the Environmental Authorisation. A monitoring checklist has to be developed in terms of the EMP, Environmental Authorisation, environmental permits, licence conditions, method statements and any other applicable legislative requirements. Any deviations identified have to be rectified.
- Environmental parameters such non-conformances, audit findings, environmental legal contraventions and environmental incidents have at least to be monitored.
- Repeat audit findings to be avoided. Apart from external audits, internal audits must be conducted on the implementation of environmental requirements.
- The contractor environmental officer has to report on the performance of the construction activities to contractor management.
- The contractor has to set environmental objectives and targets for various levels within the construction team. The objectives and targets have to be instilled in all employees.

7.32 Traffic Management Plan

- A list of all names, telephone numbers and addresses of the relevant Eskom employees, contractors and all affected landowners must be compiled and regularly updated and distributed to everyone to ensure sufficient communication channels in case of emergency and where access is required for maintenance purposes.
- Access Corridors and access points for heavy construction vehicles should be indicated to warn motorists of the movement of these vehicles.

- All complaints received with regards to poor conduct of Eskom personnel, malfunction of or damage to Eskom structures; etc. will be investigated by Eskom in co-operation with all the relevant stakeholders.
- Construction hours will be restricted to specific periods, which exclude Sundays and public holidays.
- Eskom should keep the construction of access roads to a minimum and rather use the existing infrastructure, as the construction and maintenance of these roads are very costly, impact on the residents' daily living and movement patterns, and create a potential for erosion.
- Limit the movement of construction vehicles in areas where sensitive receptors are situated e.g. schools and pedestrians.
- Limit the movement of construction vehicles to off-peak periods (where possible).
- Property owners that would be affected by the construction should be consulted prior to the construction phase with regards to the construction schedules, transportation corridors, construction of additional access roads and construction methods to be used.
- Rehabilitation of new access roads for construction vehicles should be undertaken as soon as the construction process allows.
- The existing complaints structure must be revised by Eskom and be updated on a regular basis and communicated with all the affected landowners to ensure effective response and service supply.
- There should be strict adherence to speed limits when using local roads and when travelling through residential areas.

8. OPERATIONAL PHASE

8.1 Re-vegetation and Habitat Rehabilitation Plan

- After rehabilitation fencing to be removed.
- All waste material (construction, effluent, litter from workers, etc) to be removed on a weekly basis and only by official, registered companies.
- All waste to be removed to official municipal waste disposal sites. Under no circumstances may any waste (including cooking waste) be dumped in the veld.
- Any visible erosion to be immediately attended to and corrected.
- Badly damaged areas have to be fenced in to enhance rehabilitation.
- Existing road infrastructure to be used as far as possible.
- No mounds of topsoil or other soil types to be left after construction.
- No-use roads have to be clearly marked.
- Rehabilitated and re-vegetated areas to be inspected every month until fully established. Any 'failed' areas to be re-assessed and rehabilitated until fully established and settle.
- Rehabilitation of roads to start within two weeks after construction.
- Rehabilitation to start within two weeks after construction.
- Removal of all remaining waste to commence immediately (same day) after construction is completed.
- Roads to be upgraded before construction if, due to their condition, they will not be able to handle the traffic load.
- The topsoil removed during excavations must be put to one side for re-use in the same holes or immediate area.
- Under no circumstances may alien grass seed or any alien or non-local plant species be used for rehabilitation.
- Where necessary a suitable mixture of local, indigenous grass seed to be used to re-seed damaged areas.

9 DECOMMISSIONING

If the customer network centre reaches a decommissioning phase, a decommissioning EMP has to be compiled.

Conclusion

To ensure implementation of this EMP, proper works planning is critical. Continual environmental awareness conducted on the work force can instil an environmental consciousness which is required amongst all employees. The principle of monitoring and continual improvement must be one of the core principles implemented by the construction management.