

ENVIRONMENTAL IMPACT ASSESSMENT  
FINAL BASIC ASSESSMENT REPORT

ESKOM PIENAARSRIVIER CUSTOMER NETWORK CENTRE  
DEA Ref nr 14/12/16/3/3/1/1039  
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Appendix F  
IMPACT ASSESSMENT



## IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

*Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A(2) of this report.*

### Introduction

This section of the report aims to evaluate and assess the potential impacts likely to occur from the undertaking of the proposed activities. This allows for the mitigation of the impacts and their associated costs and timeframes to be included in the project planning. The environmental issues in this section have been identified as being important and were identified and investigated in detail during the EIA.

### Assessment of Potential Impacts

The assessment findings are described in the sections below. In this report, mitigation measures will refer to the precautionary measures which can be implemented in the planning stage in order to avoid, reduce or remedy the impacts of activities from the proposed project. Please note that key mitigation measures have been highlighted in this report and detailed in the Environmental Management Programme (EMP) attached as Appendix G.

The assessment findings and proposed mitigation measures are described in the sections below.

## 1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN PHASE

The potential impacts that are likely to occur as a result of the planning and design phase are described below. In addition, the mitigation measures which may eliminate or reduce the potential impacts are also provided:

### 1.1 Biophysical Impacts

#### Impact on natural habitat

This impact is associated with the potential for disruption of sensitive floral habitats and fauna populations. During planning the ecological sensitivity of the site should be taken into account.

Relevant to the project is the following:

- The natural environment of the study area has been moderately impacted upon. It is also situated within the small town of Pienaarsrivier and as such is subject to many of the impacts associated with low levels of urbanisation. Historically, the ground has been lightly cultivated and grazed, but not on a commercial scale.
- No habitats or areas are seen as sensitive (no-go zones). There are no wetlands within the study area or within a 500m radius of the study area. There are no suitable habitats for red data faunal or floral species as such.
- The only sensitive (no-go zone) is seen as the camelthorn tree within the study area. This tree has to be protected and left undisturbed. Besides this area, there are no other sensitive (no-go) areas.

- However, the fact that the veldtype in which the study area is situated (Springbokvlakte thornveld) is endangered and poorly protected means that any development within the study area needs to be well designed carefully constructed and minimised.
- Taking the above into consideration and all mitigating measures put forward, then there are no 'fatal flaws' seen and the project may go-ahead. In other words, if all recommendations and mitigating measures are put in place the project can go ahead.

#### Mitigation for impact on natural habitat

Proper planning will limit the impact of the project on the natural habitat and therefore a number of mitigating and management measures have been recommended. The implementation of these measures will significantly reduce the potential impacts the project may have on the natural environment. Measures recommended include the following:

- Site-specific measures in terms of ecology as identified by the ecologist Johannes Maree (Tel 082 564 1211), must be included in the contract with the Contractor and implemented by the Contractor during the construction phase.
- 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.
- Any selected temporary site (accommodation and storage) preferably must be on the demarcated site itself.
- No site within 100m of a river, stream or major drainage line may be used for temporary accommodation or storage. However, in the case of this project it is not an issue.
- No indigenous trees or shrubs outside of the selected CNC site may be removed.
- No additional access roads to the CNC site for equipment transport and day-to-day vehicles may be constructed. Only existing roads to be used.
- Dust will be an issue during construction. A church building is nearby, as well as residential houses. Therefore, water trucks must be used daily on roads and construction sites to dampen dust.
- 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.
- An on going programme must be implemented to mechanically control alien plant species that invade the disturbed soils within the CNC site.
- Mechanical control of alien species to be implemented within three (3) months of completion of construction of the powerline. Thereafter ever six months.
- No chemical control (herbicides) to be used in the control of alien plants. All control of weeds to be mechanical in nature.
- Only locally indigenous trees to be planted on CNC site (if landscaping is to be done).
- All construction material, equipment and any foreign objects brought into the area by contractors and staff to be removed immediately after construction.
- Removal of all waste construction material to an approved waste disposal site. And only by an official registered waste removal company. Eskom to ensure that the company does remove waste to a registered site and does not dump illegally.
- 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.

## 1.2 Human environment

### Social Impact

- The construction of the project could potentially impact on landowners if not planned and designed to accommodate the needs of the landowners.
- Any possible impact on landowners as well as land users has to be identified and accommodated before construction.

### Mitigation for Social Impact

- All affected landowners were identified during the course of the EIA and consulted with regarding the proposed project.
- The Applicant has appointed a negotiator to consult with the land owner(s). Further negotiations are taking place to confirm the details for acquisition as well as compensation.

## **2 IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION PHASE**

The potential impacts which are likely to occur as a result of the construction phase are described below. In addition, the mitigation measures that may eliminate or reduce the potential impacts are also provided:

### **2.1 Biophysical Impacts**

#### Impact on natural habitat

This impact is associated with disturbance to and/or destruction of the flora and fauna component.

- The nature of the impact on the natural environment is the proposed construction and establishment of a customer network centre (CNC). The biggest impact will be during the construction phase when the buildings and parking lot are built. Thereafter, the impacts will still be significant and lasting and will include the buildings and continual movement of people in the area. The fact that the area will be fenced will have significant impact on the movement of any terrestrial species should they venture through the area.
- The footprint of the proposed project is relatively small and in a low urbanised and farming area and will not have any significant negative impacts on other activities.
- Potential impacts during the construction phase include the loss of primary vegetation, the loss of potential Red Data flora and fauna, disturbances and the loss of areas with high ecological function.
- During construction the project could cause a significant impact where insensitive clearing for construction and access purposes etc, is required. Insensitive clearing can cause the destruction of habitat. Not only does vegetation removal represent a loss of seed and organic matter, but it is also a loss of protection to plants and small animals. Insensitive vegetation clearance can also cause erosion.
- Pressure on the natural environment will occur as a result of an influx of labourers into the area that could involve the collection of firewood and medicinal plants, as well as uncontrolled veld fires.
- Various species of indigenous trees and bush on private land are protected by law in terms of the National Forests Act No 84 of 1998, which stipulates that it is necessary to obtain a permit from the Forestry Branch of the Department of Agriculture, Forestry and Fisheries in order to cut, trim or remove them.

#### Mitigation of impact on natural habitat

- Proper mitigating measures and recommendations have been put in place to reduce negative impacts on the watercourses and surrounding vegetation.
- Site-specific measures for the specific properties as identified by the ecologist must be implemented by the Contractor during the construction phase and by Eskom and the maintenance teams during the operational phase. Refer to mitigation measures provided in the Planning phase.
- Camp site, storage facilities and other necessary temporary structures to preferably be erected within the confines of the CNC site.

- No open fires to be allowed outside of designated sites.
- Collection of wood for fires and cooking from out of the surrounding veld is prohibited.
- A designated area for camp fires and cooking needs to be made. Should open fires be used then an area of at least 2m by 2m needs to be cleared of any flammable materials such as grass.
- No material or machinery to be stored or placed in the open veld outside the designated area of the CNC site.
- Proper and adequate containers (rubbish bins) to be placed in campsites for the temporary disposal of food waste and general litter generated by construction workers. These containers need to close securely to avoid items (eg. Paper and plastic) been blown into the veld, etc. Proper waste management is essential.
- Containers for food and general waste to be removed weekly to avoid bins overflowing their capacity.
- Under no circumstances may any sewage, waste food or general litter be dumped, or buried in the veld.
- No concrete to be allowed to be mixed in the veld. Only premixed cement to be used and only to be transported onto site in registered concrete trucks.
- All construction activities and movement of people and machinery to remain within the designated CNC site, as far as possible and within reason.

#### Impact on conservation important species

(Plant Rescue and Protection Plan)

The focus of the plant rescue and protection plan is to allow for the maximum transplant of conservation important species from the areas that will be transformed by the project. According to Dept. Environment Affairs guidelines the plan must be compiled by a vegetation specialist familiar with the site, and in consultation with the Environmental Control Officer (ECO) for the project. The plan must be implemented prior to the commencement of the construction phase.

In plant ecology one plant community gradually replaces another plant community over time, by natural processes. This is called plant succession. Disturbed, open soils will in many ways start a new succession. Pioneer plants, which are often opportunistic and grow vigorously will colonise the area first. Unfortunately, this is what most weeds are and therefore need to be continually removed. Thus given the indigenous species change to colonise and stabilise the area. As well as reintroduce the local plant mix back into the area and hereby also keep out many weeds.

Due to the level of existing disturbance on the area and that no red data species occur (except for *Acacia erioloba*) and the small footprint of the proposed buildings, no intricate or detailed plant rescue plan is necessary. This is also because of the plant communities and vegetation types present in the study area. However, care must be taken to remove any bulbous plants found. These need only be removed if directly in the way of construction.

The existing camelthorn tree may not be removed or even pruned. A buffer zone of 5m around the tree must be enforced. No other trees above 2m to be removed, without planting the same of similar tree somewhere else on the premises.

#### Mitigation of impact

- Remove any bulbous or aloe-type plants (orchids, lilies, pokers, aloes, etc) found growing directly in the area of construction.
- Immediately replant any lifted bulbs nearby, or in a similar habitat.
- Any lifted bulbs to be handled with care to avoid physical damage, which could lead to them dying or reduce their chances of successfully re-establishing on the new site.
- After construction (within two weeks) a mix of local, indigenous grass seeds to be sowed on disturbed, bare soils.

- Protected trees to be identified and Tree permit for removal of protected trees obtained from DAFF.

#### Risk of Surface and Groundwater Pollution

- No large perennial rivers are found in the immediate area or the study area. The closest river is the Pienaars river, which is approximately 1,7km to the west and south of the study area. No wetlands, drainage lines or other watercourses are present in the study area. No large bodies of open water such as dams or even farms dams are present in the study area or in the local area.
- Hazardous materials and construction equipment will be stored at the campsite and used on site. The pollution of groundwater may result from spillages that may occur. In addition, the campsite may accommodate construction workers, in which case solid and liquid effluents will be produced, including sewage and domestic solid waste.
- Therefore diesel, oil and lubricant spills are the main concern in respect of water pollution during construction together with organic pollution caused by inadequately managed facilities at site camps and at the work sites. The above may result in a change in groundwater quality with the associated negative impact on humans and the natural habitat.
- A management plan must be in place to rehabilitate any such spills. Part of the management strategy must further include the proper storage and removal of any by-products and building rubble.

#### Mitigation of Surface and Groundwater Pollution

##### Construction camp

- 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.
- The contractor should identify an environmental less sensitive area suitable for site establishment. This includes areas which will be used for material layout, offices, camps etc.
- 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.
- Any selected temporary site (accommodation and storage) preferably must be on the demarcated site itself.
- No site within 100m of a river, stream or major drainage line may be used for temporary accommodation or storage. However, in the case of this project it is not an issue.
- Proper water facilities need to be installed and maintained for construction workers. No water from out of the river may be used for drinking, washing or cooking purposes.
- Potable water that complies with SANS Standards must be provided for drinking and cleansing purposes.
- In all cases, abstraction of water for construction purposes will require a permit from the Department of Water Affairs unless pre-existing rights are purchased from landowners. For this project, water tanks will be provided at the construction site.
- 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 of underground water. The use of pre-mixed cement is recommended. No concrete to be allowed to be mixed in the veld.
- Storage and handling of fuels, lubricants, paint, tar, bitumen binders and other chemicals must be done in especially demarcated impervious and bunded areas.

##### Diesel, hydraulic fluid and lubricants

- Minimize on-site storage of petroleum products;
- Build adequate structures (berms and containment structures) to contain any oil spills which might emanate from transformers;

- Bund storage tanks to 110% of capacity;
- Ensure proper maintenance procedures in place for vehicles and equipment.
- Servicing of vehicles to be in designated areas with appropriate spill management procedures in place;
- Ensure measures to contain spills readily available on site (spill kits).

#### Site camp domestic waste (kitchens, showers)

- Deposit solid waste in containers and dispose regularly at the appropriate landfill site licensed in terms of section 20 (b) of the National Environment Management Waste Act 59 of 2008. Proof thereof to be kept by contractor.
- A copy of the service agreement, to verify the disposal sites that will be accepting the waste, to be kept by the contractor.
- Dispose of liquid waste (grey water) with sewerage.

#### Site camp sewage

- Minimize on-site accommodation.
- Adequate ablution facilities, toilets and change rooms must be provided on site according to 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.
- If mobile chemical toilets are used, the contents thereof must be disposed of regularly in an approved sewage treatment facility, permission for which must be obtained from the relevant local municipality.
- Toilets to be provided with a ratio of one for every 15 workers.
- These portable toilets to be administered and serviced by a certified, registered company only.
- Regular inspections to be done to ensure high hygiene standards. Employees to be sensitised to use these toilets at all times.
- No use of the veld to be allowed, as this results in pollution and landowner complaints and claims. Proof that the toilets are being serviced to be kept on site.
- 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.
- Portable toilets must be secured to prevent them from being blown over in windy conditions.

#### Site camp inert waste (waste concrete, reinforcing rods, waste bags, wire, timber etc)

- Ensure compliance with stringent daily clean up requirements on site.
- Any waste that cannot be recycled will be transported to the appropriate landfill site licensed in terms of section 20 (b) of the National Environment Management Waste Act 59 of 2008.

#### Impact of erosion

- The exposed soil and current development activities can result in localised erosion during rain events, especially from runoff from the roads, urban areas, informal settlements and agricultural areas.
- During foundation excavation, bush clearing will be done. Depending on location, this may encourage soil erosion. This will be localized rather than an extended disturbance.
- Insufficient soil coverage after placing of topsoil where large surface areas are applicable, could also cause erosion.
- The management of surface water run-off during construction is important to prevent soil erosion on the site. If construction takes place during the rainy season, sufficient storm water management will be required to manage water run-off.
- In summary, excavation of foundations, movement of vehicles and people and the run-off from cleared areas can cause erosion.

### Mitigation of Impact of erosion

- Construction activities have to be well managed to prevent erosion and the following is relevant:
- Unnecessary clearing of flora resulting in exposed soil prone to erosive conditions to be avoided.
- 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.
- Indigenous vegetation, which does not interfere with the construction activities, to be left undisturbed.
- Pro-active measures must be implemented to curb erosion and to rehabilitate eroded areas. All areas susceptible to erosion must be installed with temporary and permanent diversion channels and berms to prevent concentration of surface water and scouring of slopes and banks, thereby countering soil erosion.
- 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 to be replanted with a grass mixture indigenous to the area.
- The eradication of any alien vegetation to be followed up as soon as possible by replacement with indigenous vegetation to ensure quick and sufficient coverage of exposed soil.
- No roads may be cut through riverbanks, stream banks or drainage line banks, as this may lead to erosion and siltation of watercourses and downstream dams.
- No unnecessary roads or vehicle tracks or driving of vehicles through the veld as this leads to increased denuding of the covered soils, which leads to increased erosion potential.
- No disturbance to sand roads due to construction activities.
- No disturbance to watercourse embankments outside of project area.

### Impact on avi-fauna

#### *Habitat destruction and disturbance*

During the construction phase and maintenance of the proposed CNC, habitat destruction and transformation inevitably takes place. This happens with the construction of access roads, and the actual construction of the CNC infrastructure, which will result in the total transformation of an area of approximately 3ha. These activities will have an impact on birds breeding, foraging and roosting in or in close proximity of the site, through the modification of habitat and disturbance during the construction activities, which will result in the displacement of birds from the area.

The construction of the proposed Pienaarsrivier CNC will pose a limited threat to the birds occurring in the vicinity of the new infrastructure primarily through habitat destruction and disturbance. However, the impact of habitat transformation associated with the construction of the CNC should be low and should only affect non-Red Data species resident or foraging at the site itself, and not local or regional populations.

#### Mitigation for impact on avi-fauna

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.

### Solid Waste

- It is expected that a certain amount of construction waste will be generated during construction.



- Expected waste could be cement, concrete and general waste around the construction site (plastic, tins and paper), which may degrade the environment if not disposed in the correct manner.
- Solid waste might remain on site after the completion of construction. This can cause pollution to the environment and be detrimental to animals.

#### Mitigation of Solid waste

- 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).
- The construction teams have to ensure that all waste is removed from the site and that they recycle the items that can be used again.
- Any waste that cannot be recycled will be transported to the appropriate licensed landfill site. A copy of the service agreement, to verify the disposal sites that will be accepting the waste, has to be kept on site.
- Proper and adequate containers (rubbish bins) to be put in campsites for the temporary disposal of food waste and general litter generated by construction workers. These containers have to close securely to avoid items (eg paper and plastic) being blown into the veld or being pushed over and rummaged through by wild animals. Proper waste management is essential.
- Containers for food and general waste to be removed weekly to avoid bins overflowing.
- Under no circumstances may any sewage, waste food or general litter be dumped in the veld.
- Stockpiling of construction material to be such that pollution of water resources is prevented and materials secure in the event of a storm.
- Once construction is completed, the contractor has to obtain written consent from the relevant landowner that the construction site, construction areas, access routes, etc are sufficiently and adequately rehabilitated to the landowner's satisfaction.

#### Impact of alien vegetation

- One of the impacts of concern is the introduction of alien plants and the use of chemical herbicides (weed-killers). This impact has to be monitored and managed on an on-going basis.
- The clearing of vegetation during the construction phase will leave bare patches of soil, thereby enhancing the colonisation by ruderal weeds (mostly annual weeds) or declared alien species that will prohibit the natural succession during rehabilitation procedures. Such soil disturbances (as well as the inappropriate handling of topsoil) can enhance the spread of invader taxa to other systems or vegetation units of high sensitivities. Also, increased disturbances along the streams will potentially facilitate the spread of alien invader species along drainage lines.
- The alien invasive management plan (in other words, weed-control plan) has to be implemented during the construction and operation phases of the project. The plan includes mitigating measures to reduce the invasion (and encroachment) of alien plant species as well as the continuous monitoring and removal of alien species.
- 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 has to be incorporated into the routine inspection activities.

#### Mitigation of alien vegetation

- The introduction of alien plant species into the area to be prevented
- The spread of existing alien plant species to be minimised
- No weeds to be allowed to grow in disturbed (rehabilitated) soils
- No herbicides to be used on aliens

- Aliens to be removed mechanically
- Ensure that all activities as well as contractors and practitioners adhere to the Eskom Guidelines for Herbicide Use TRR/S91/032.

## 2.2 Human environment

### Impact of labourers

An uncontrolled influx of temporary labourers with associated squatter and increased crime problems create pressure on the natural environment (placement of snares, removal of trees for firewood, careless waste disposal, etc). This could be severe resulting in permanent damage to the environment if not mitigated properly.

### Mitigation of impact of labourers

- A small number of construction workers will be on site. A large workforce is thus not expected. Even if all the required labourers (highly skilled to unskilled) are sourced from outside the study area (worst case scenario) it is not anticipated that the relatively small construction workforce will have an impact on the population size and density of the local communities within the study area.
- Given the specialist nature of the construction, specialist contractor teams have to be appointed by Eskom for the construction phase of the project. These contractor teams will consist of highly skilled specialists, semi-skilled and unskilled workers. The nature, extent and intensity of this impact will thus depend on the number of locals that will form part of the contractor teams and whether construction camps have to be set up to house the temporary “outside” workforce within the study area.
- Due to the anticipated size of the construction workforce, it is apparent that the impacts associated with the inflow of temporary workers to the study area are not expected to result in severe negative impacts on the local communities’ social networks, even if the majority of the workforce will be from outside the community (worst case scenario). It is furthermore not expected that the inflow of temporary workers will put additional pressure on the current infrastructure and service delivery in the area, as their immediate needs will be provided through the construction camp infrastructure and services provided on site, or by the existing infrastructure and services available in the study area.
- Care should, however, be taken to avoid conflict between the local communities and the “outside” workforce that will be working “inside” more densely populated areas. Although the construction period will be of a short duration in any one area, it has to be kept in mind that the construction teams could interfere with the social networks and daily living patterns of residents due to the proximity of the construction area.
- Mitigation measures to counter impact on the natural environment and limit potential for crime include specifications in terms of control of construction workers (ie provision of toilet and cooking facilities, provision of either accommodation facilities or transport facilities, implementation of Environmental Educational Programmes, etc). Accommodation for labourers must either be limited to guarding personnel on the construction site (with labourers transported to and from existing neighbouring towns) or a separate fenced and controlled area where proper accommodation and relevant facilities are provided.
- Eskom and the contractors to maximise the use of local labour where possible by developing a strategy to involve local labour in the contractor teams and construction process.
- Before construction commences, representatives from the local authority and community-based organisations, as well as neighbouring and/or affected residents have to be informed of the details of the construction company (contractor), size of the workforce and construction schedules.

- Conditions stipulated by property owners in terms of the construction activities have to be implemented and monitored.
- Contractors and temporary employees to behave fittingly at all times.
- Workers to be fined if they do not adhere to the conditions, rules and regulations.
- Workers have to be made aware of property owners' concerns regarding construction work on their properties so that they are familiar with the sensitive issues.
- A specific contact person has to be identified to allow community members and property owners to easily direct their queries and concerns and obtain general information regarding the construction process.
- Prepare a comprehensive Environmental Management Plan (EMP) for the control of environmental impacts at the site camps.
- The EMP has to include specific provision for the management of the following:
  - Site location
  - Solid waste
  - Liquid effluent (sewage)
  - Storm water
  - Litter
  - Nuisance (Noise)
  - Hazardous substances
  - Social pathologies (prostitution, drunkenness, theft)
  - HIV/Aids prevention.
- Develop an HIV/Aids workplace policy.
- Ensure that the contractors develop a comprehensive site camp management plan. This to apply even in the case of the limited accommodation camps recommended above.
- Plan campsites an appropriate distance from any facility where it can cause a nuisance.

### Employment Opportunities

The construction will not create large scale job opportunities. These opportunities will require skilled workers, semi-skilled workers and unskilled labourers. The type of jobs required could include project and construction managers, contract supervisors, construction foremen and general labourers (skilled and semi-skilled). Opportunities for local labour are thus possible, although limited when the population size is taken into consideration. Due to the social character of the population within the study area, any possible job opportunities for locals to be viewed as a social benefit as the limited number of job opportunities (even temporary) could still have some positive economic impact on select families. The proposed project could further assist with capacity building through on-site training and skills development opportunities.

### Mitigation

The following mitigation measures have to be implemented to enhance the positive aspects associated with local job creation:

- It is recommended that the contractor employs local semi-skilled and unskilled labour from the study area to avoid conflict between locals and outsiders with regard to the securing of employment.
- Eskom to stipulate in their contracts with the contractors that local labour has to be used for e.g. vegetation clearing, road construction and fencing.
- Ward councillors could assist in determining available local labourers that can be considered for possible employment.
- Eskom to ensure an equitable process whereby minorities and previously disadvantaged individuals (women) are also taken into account.
- It is recommended that Eskom implements a skills audit and develops a skills database.

- Capacity building and skills transfer should immediately commence to ensure that locals are employable.
- It has to be ensured that contractors use local skills, or train semi-skilled people or re-skill appropriate candidates for employment purposes where possible.
- Onsite training to focus on the development of transferable skills (technical, marketing and entrepreneurial skills) to ensure long-term benefits to the individuals involved.

#### Local Procurement

At this stage, no information is available with regard to the material and quantity of material required or consumables (eg fuel for construction vehicles) for the construction. The impact of the project on the procurement of local businesses and previously Historically Disadvantaged South Africans (HDSA's) can therefore not be determined at this stage. It is, however recommended that Eskom commits itself to involving locals (HDSA's and SMME's) in the procurement of capital goods, consumables and services, if these are locally available. Due to the specialised material and equipment used, the intensity of this impact is considered to be of a low magnitude, although moderately probable.

#### Mitigation

The following mitigation measures are proposed:

- Local procurement to be aimed at as far as possible.
- Local sourcing of materials will assist in providing more economic and employment opportunities for the local people.
- Local procurement can result in indirect economic spin-offs and benefits such as increased income, and expansion of other local economic sectors.

#### Local economic benefits

Local economic benefits during the construction phase include the temporary employment of local labourers and short term socio-economic spin-offs such as increased buying power around the construction sites, and small scale economic advancement of entrepreneurs (eg those selling food and goods to the construction workers). Although the benefits of temporary employment are short lived, it still has to be seen as a positive impact due to the high unemployment rates and levels of poverty found in the study area.

#### Mitigation

The following is recommended to enhance the socio-economic benefits during the construction phase:

- Maximise the use of local labour even if the number of locals that will be employed will be limited.
- Accommodate, but regulate the activities of vendors in the vicinity of the construction areas and at the construction camps.

#### Daily living and movement patterns

The construction timeframe for the CNC is estimated to be a few months. This process will include site preparations, vegetation clearance (where required), excavations for foundations, etc. Heavy construction vehicles will be used to transport material to the construction sites, but due to the limited number of these, the negative impacts on the residents' daily living and movement patterns

are expected to be of a low magnitude. Main Corridors that could be negatively affected, even by a limited number of construction vehicles, include the N1, R101, D626.

Impacts on daily living and movement patterns also refer to the increased noise pollution during construction activities, especially where construction will take place in close proximity to dwellings. Construction activities, however, will be short term. Noise will thus only be temporary generated and if construction activities adhere to all relevant legislation in this regard and limit construction activities to normal working hours, the impact is anticipated to be minimal.

#### Mitigation

- Property owner(s) that will be affected by the proposed construction have to be consulted prior to the construction phase with regard to construction schedules, transportation corridors, construction of additional access roads and construction methods to be used.
- Eskom to keep the construction of access roads to a minimum and rather use the existing infrastructure as construction and maintenance of these roads are very costly, impact on the residents' daily living and movement patterns, and create a potential for erosion.
- Rehabilitation of new access roads for construction vehicles to be undertaken as soon as the construction process allows.
- Strict adherence to speed limits when using local roads and when travelling through residential areas.
- Access Corridors and access points for heavy construction vehicles to be indicated to warn motorists of the movement of these vehicles.
- Limit the movement of construction vehicles to off-peak periods (where possible).
- Limit the movement of construction vehicles in areas where sensitive receptors are situated eg schools and pedestrians.

#### Noise mitigation

- Machinery and vehicles to be in good working order to limit excessive noise pollution.
- Construction hours will be restricted to specific periods which exclude Sundays and public holidays.
- All construction workers will be allowed only for specified day light hours and will be transported from the site by the contractors.

#### Impact on Safety and Security

Safety and security impacts include construction related risks and accidents, vehicular accidents, the perceived increase in crime as a result of outsiders being in the area, a threat to the safety of children or individuals in the area, mortality to stock and other farm animals close to the site, including stock theft and poaching and the possible increased risks of veld fires. This impact will be more severe in the areas where the construction sites are in close proximity to residential neighbourhoods and in areas with high levels of pedestrian movement eg in the vicinity of schools. This project area is scarcely populated and does not have high levels of pedestrian movement.

In terms of safety, it has to be noted that the project involves the excavation of land. Excavations and open trenches can act as a trap for children (and also snakes, small mammals and lizards). Blasting can also create a safety risk in terms of flying objects and damage to properties.

#### Mitigation of Impact on Safety and Security

##### Safety mitigation measures

- Personal protective equipment and clothing to be given to workers and enforced to avoid construction related accidents.
- Construction workers have to wear clearly identifiable clothing that allows landowners to easily identify contract workers on site.

- The movement of construction vehicles through the local communities to be limited to off-peak periods (if possible) to minimise adverse impacts on the movement of pedestrians (individuals walking to and from work and schoolchildren) and to a lesser extent on private vehicular traffic.
- Construction vehicles have to keep to the speed limits.
- Signs must be erected at strategic locations throughout the area, warning residents and visitors about the hazards around the construction site and the presence of heavy vehicles.
- The contractor and Eskom have to develop safety management plans which have to be discussed with construction workers prior to construction.
- Construction sites to be fenced off to avoid unauthorised entry.
- Local labour has to be used as far as possible to limit the influx of an outside work force and potential outside jobseekers.
- Safety and security measures have to be discussed with the property owners and local safety and security structures eg the local Community Policing Forums.
- During construction, the Contractor has to put up a temporary fence around the campsite and work areas.
- All construction activities to take place within fenced or otherwise demarcated areas.
- All excavated areas must be fenced and barrier tape must be placed around them to prevent humans and animals from falling into them.
- The contractors must appoint their own guards to safeguard their materials.
- Once construction is completed, the contractor has to obtain written consent from the relevant landowner that the construction site, construction areas, access routes, etc are sufficiently and adequately rehabilitated to the landowners' satisfaction.
- If blasting is deemed necessary, it may only be undertaken by specialists in the field and has to be limited to localised areas. All relevant legislation must be adhered to.
- All adjacent landowners have to be informed of the blasting programme prior to any blasting taking place. Contractors must liaise personally with adjacent landowners. All communication in this regard must be documented.
- A Fire Management Plan has to be identified during the pre-construction phase and must be implemented throughout the construction and operational phases of the project.
- No open fires to be allowed outside of designated sites.
- Collection of wood for fires and cooking from out of the surrounding veld is prohibited.
- A designated area for camp fires and cooking needs to be made. Should open fires be used then an area of at least 2m by 2m needs to be cleared of any flammable materials such as grass.
- Fire fighting equipment must be readily available on site during welding and cutting operations.
- No fires may be made for the burning of vegetation and waste.
- No fires may be made for the purpose of chasing or disturbing indigenous fauna.
- Construction workers have to be barred from collecting firewood or any medicinal and protected plant species.
- No firearms to be allowed at the construction sites.

#### Impact of dust pollution

The negative impact of noise and dust generally associated with construction activities, is temporary occurring mostly during the construction phase.

#### Mitigation of dust

##### Dust mitigation measures:

- Appropriate dust suppression techniques must be implemented on all exposed surfaces to minimise and control airborne dust. Such measures must include 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.

#### Impact on cultural heritage resources

Construction can destroy heritage resources ('national estate') if it occurs in or near the proposed project area.

A Phase I Heritage Impact Assessment (HIA) study was done and revealed no presence of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act 25 of 1999. In addition, a desktop palaeontological impact assessment scope and study was undertaken.

#### Mitigation of impact on cultural heritage resources

- Both Alternative 1 and Alternative 2 for the proposed site are viable from a heritage as well as a palaeontological impact assessment point of view.
- If any evidence of archaeological sites or remains (eg, 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, SAHRA APM Unit (Jenna Lavin/Colette Scheermeyer 021 462 4502) must be alerted immediately, and a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contacted as soon as possible to inspect the findings. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation might be necessary.

#### Visual impact

Visual and aesthetic impacts will result from the construction activities of excavation and transporting of materials. The construction activities will however be of short duration.

If sensitive vegetation clearing as proposed in the mitigation measures has to be exercised then the visual impact resulting from construction of the CNC should be of low significance.

#### Mitigation of visual impact

The following is relevant to this project:

- Impact to the natural habitat as a result of the project is to be expected. Construction can cause a significant impact where clearing for construction and access purposes, etc is required. Insensitive clearing can cause the destruction of habitat.
- It is suggested that any existing roads must be used during construction.
- Unnecessary clearing of flora resulting in exposed soil prone to erosive conditions to be avoided.
- 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.
- Indigenous vegetation, which does not interfere with the construction activities, to be left undisturbed.
- 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.

- In terms of the National Forest Act and the National Environmental Management: Biodiversity Act, and Provincial Ordinances, certain plant species are protected and or endangered.
- 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.
- 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.
- Landscaping plays a crucial factor in reducing the visual impact of a development and proper planning is therefore required. The following guidelines should apply:
- The general aim with landscaping should be to integrate it with the natural environment of the site and its surrounding area. Therefore, indigenous landscaping, combined with the eradication of alien vegetation, will conserve and enhance the natural character of the site and its surrounds.
- The establishment of indigenous landscaped gardens and rehabilitation of the natural areas will contribute to the biodiversity of fauna in the area, which would add to the aesthetic experience of the site.

#### Loss of agricultural land

The construction of the CNC with the resulting clearance of the footprint could lead to a loss in agricultural land. The size of the property and extent of the agricultural activities also influence the significance of this impact and should thus be considered.

#### Mitigation of impact on Agriculture

The proposed construction of the CNC will not impact significantly on any agricultural activity. The following is relevant to this project:

- The study site is presently a small piece of un-utilised veld that is lying fallow. No extensive or even medium term agricultural activities of any sort have taken place on the site over the years.
- The agricultural potential of the study area can be seen as very low arable to very low-grazing. In other words, the agricultural potential for the local area (or loss thereof caused by the construction of a customer network centre) is negligible.

#### Impact of traffic

Heavy construction vehicles will be used to transport material to the construction sites, but due to the limited number of these, the negative impacts on the residents' daily movement patterns are expected to be of a low magnitude. Main Corridors that could be negatively affected, even by a limited number of construction vehicles, include the N1, R101, and D626.

#### Mitigation of traffic

- 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.
- 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.
- Rehabilitation of new access roads for construction vehicles should be undertaken as soon as the construction process allows.
- There should be strict adherence to speed limits when using local roads and when travelling through residential areas.



- Access Corridors and access points for heavy construction vehicles should be indicated to warn motorists of the movement of these vehicles.
- Limit the movement of construction vehicles to off-peak periods (where possible).
- Limit the movement of construction vehicles in areas where sensitive receptors are situated e.g. schools and pedestrians.
- Construction hours will be restricted to specific periods, which exclude Sundays and public holidays.
- 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.
- 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.
- 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.

### **3 IMPACTS THAT MAY RESULT FROM THE OPERATIONAL PHASE**

The potential impacts that are likely to occur as a result of the operational phase are described below. In addition the mitigation measures that may eliminate or reduce the potential impacts are also provided:

#### **3.1 Biophysical Impacts**

##### Impact of alien vegetation

- An impact of concern is the introduction of alien plants and the use of chemical herbicides (weed-killers). This impact has to be monitored and managed on an on-going basis.
- The alien invasive management plan (in other words, weed-control plan) has to be implemented during the construction and operation phases of the project. The plan includes mitigating measures to reduce the invasion (and encroachment) of alien plant species as well as the continuous monitoring and removal of alien species.
- 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 has to be incorporated into the routine inspection activities.

##### Mitigation of alien vegetation

- The introduction of alien plant species into the area to be prevented
- The spread of existing alien plant species to be minimised
- No weeds to be allowed to grow in disturbed (rehabilitated) soils
- No herbicides to be used on aliens
- Aliens to be removed mechanically
- Ensure that all activities as well as contractors and practitioners adhere to the Eskom Guidelines for Herbicide Use TRR/S91/032.

##### Re-vegetation and habitat rehabilitation

A re-vegetation and habitat rehabilitation plan is to be implemented during the construction and operation phases of the project. It includes timeframes for restoration, which indicate rehabilitation within the shortest possible times after completion of the construction activities. This in an effort to

limit the amount of habitat converted at any one time and to speed up the recovery of the natural habitats disturbed.

#### Mitigation

- The topsoil removed during excavations must be put to one side for re-use in the same holes or immediate area.
- Where necessary a suitable mixture of local, indigenous grass seed to be used to re-seed damaged areas.
- Badly damaged areas have to be fenced in to enhance rehabilitation.
- After rehabilitation fencing to be removed.
- Under no circumstances may alien grass seed or any alien or non-local plant species be used for rehabilitation.
- Roads to be upgraded before construction if, due to their condition, they will not be able to handle the traffic load.
- No-use roads have to be clearly marked.
- Existing road infrastructure to be used as far as possible.
- Rehabilitation of roads to start within two weeks after construction.
- No mounds of topsoil or other soil types to be left after construction.
- Rehabilitation to start within two weeks after construction.
- 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.
- Removal of all remaining waste to commence immediately (same day) after construction is completed.
- 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.
- Any visible erosion to be immediately attended to and corrected.

## **4 IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING AND CLOSURE PHASE**

It is not envisaged that the CNC will be decommissioned. Eskom is currently experiencing an increased demand for the supply and distribution of additional electricity in the project area.

It is generally assumed that the decommissioning process is the reverse of the construction process and as such the indicated impacts will also be relevant to decommissioning phase.

#### Nuisance Factors

These are likely to be of most significance during the construction phase and include noise and dust pollution. The magnitude of these potential impacts will be dependent on a number of factors including proximity of construction sites to settlements, other public amenities including roads, location of the construction camp site. These impacts are addressed under the impacts that may result from the construction phase. In addition the EMP proposes appropriate measures to address these.

#### Waste management

Waste generated has to be managed accordingly and entails correct on-site storage, transportation and disposal. Waste has to be categorised between nonhazardous and hazardous waste, which require different disposal methods. These are to be stipulated in the EMP. Waste generated includes domestic waste, construction rubble, unused or damaged material etc. The

disposal of materials will have to be at appropriate landfill sites licensed in terms of section 20(b) of the National Environment Management Waste Act 59 of 2008. A copy of the service agreement, to verify the disposal sites that will be accepting the waste, to be kept onsite.

#### Soil Erosion

The removal of the land cover during construction will expose surface soils to erosion which will result in the loss of topsoil, soil nutrients, sedimentation of nearby water systems and the creation of gullies. The rate of soil erosion is generally accelerated in areas with slopes greater than 20° and along un-vegetated slopes.

If decommissioning of this project is required, then the potential for erosion based on the soil composition across the study area will have to be determined as well as possibly areas of high risk in terms of the slope. Once the decommissioning is completed, the contractor has to obtain written consent from the relevant landowner that the construction site, construction areas, access routes, etc are sufficiently and adequately rehabilitated to the landowner's satisfaction.

#### Soil Contamination

Incidents of soil contamination due to accidental spillages of various contaminants such as fuel, lubricants and paints are likely during construction. Such incidents have a potential to pollute surface and underground water sources through run-off and seepage. The construction EMP outlines appropriate measures and procedures to address these effects. These measures are also applicable to decommissioning.

## **5 CUMULATIVE IMPACTS**

Cumulative effects are caused by the accumulation and interaction of multiple stresses affecting the parts and the functions of ecosystems. For our purpose, cumulative effects are defined as the changes to the environment caused by an activity in combination with other past, present, and reasonably foreseeable human activities.

The magnitude, extent and duration of environmental effects depend on the characteristics of a development activity in a particular location.

The cumulative effect for constructing the CNC will be low. In time the overall cumulative impact on this area is likely to increase as agriculture, urbanisation and other Eskom developments are placing pressure on the habitat. It is thus critical that major role players in the region's economy create long term strategic plans that will accommodate and enhance a wide range of economic activities.

Equally important is the need for Eskom to align all the projects that are planned for the area in order to minimise the potential negative impacts and enhance potential positive outcomes. It is therefore crucial for Eskom to liaise very closely with the various municipalities to mainstream Eskom projects into the Integrated Development Plans (IDPs) and Spatial Development Frameworks (SDFs) of the respective municipalities.

#### **Municipal Infrastructure**

The extra pressure that this development could place on the existing municipal infrastructure for waste as well as water provisions could be significant when seen together with other developments within the greater municipal area.

A Services Agreement will however be entered into between the Applicant and the local municipality in which the municipality will confirm that sufficient capacity exist to service the development. Such an agreement will only be possible if the municipality take the existing and

future developments within the area into consideration. The cumulative effect of waste and water volumes will therefore be catered for.

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