EXECUTIVE SUMMARY

1. BACKGROUND TO THE PROJECT

An EIA for the construction of a 765 kV Transmission line between the Hydra Substation and the Gamma Substation was undertaken during 2005 in accordance with the EIA Regulations published in Government Notice R1182 to R1184 of 5 September 1997, in terms of Section 21 of the Environment Conservation Act (No 73 of 1989), as well as the National Environmental Management Act (NEMA; No 107 of 1998). Environmental authorisation, in the form of a Record of Decision, was granted by the National Department of Environmental Affairs and Tourism (DEAT) in December 2005.

Since December 2005, there has been continued high growth in electricity demand in the Western and Eastern Cape Provinces, particularly at Port Elizabeth with the extensive developments taking place within the Coega Industrial Development Zone (IDZ). By using the planning process in place, Eskom Transmission has established that there is a need to extend the 765 kV Hydra Substation in order to accommodate the expanding Transmission network in that region.

To this end, Eskom Holdings Limited (Eskom) also propose to construct a second 765 kV Transmission power between Hydra Substation, near De Aar and Gamma Substation, near Hutchinson south of Victoria West, approximately 130 km in length. This power line is proposed to be constructed parallel to the first Hydra Gamma 765 kV Transmission line (DEAT Ref. No. 12/12/20/577) approved in December 2005. This proposed Hydra Gamma 2 Transmission power line would form a connection with the proposed 765 kV Transmission power line extending from Perseus Substation (near Dealesville) to Hydra Substation.

2. PROJECT DESCRIPTION

Location and extent of the study area

The proposed 130 km Hydra Gamma 2 Transmission power line extends between the Hydra Substation, near De Aar and the Gamma Substation, near Hutchinson south of Victoria West, Northern Cape Province (See Figure 1).

The proposed extension of the Hydra Substation in order to accommodate the increase of the Transmission load in the area, will take place on the farm Hydra No. 144, which is owned by Eskom. The proposed extension will be adjacent to the existing Hydra Substation and 5 km east of De Aar. The proposed extent of the Hydra Substation will be approximately 250 m x 200 m (5 hectares).

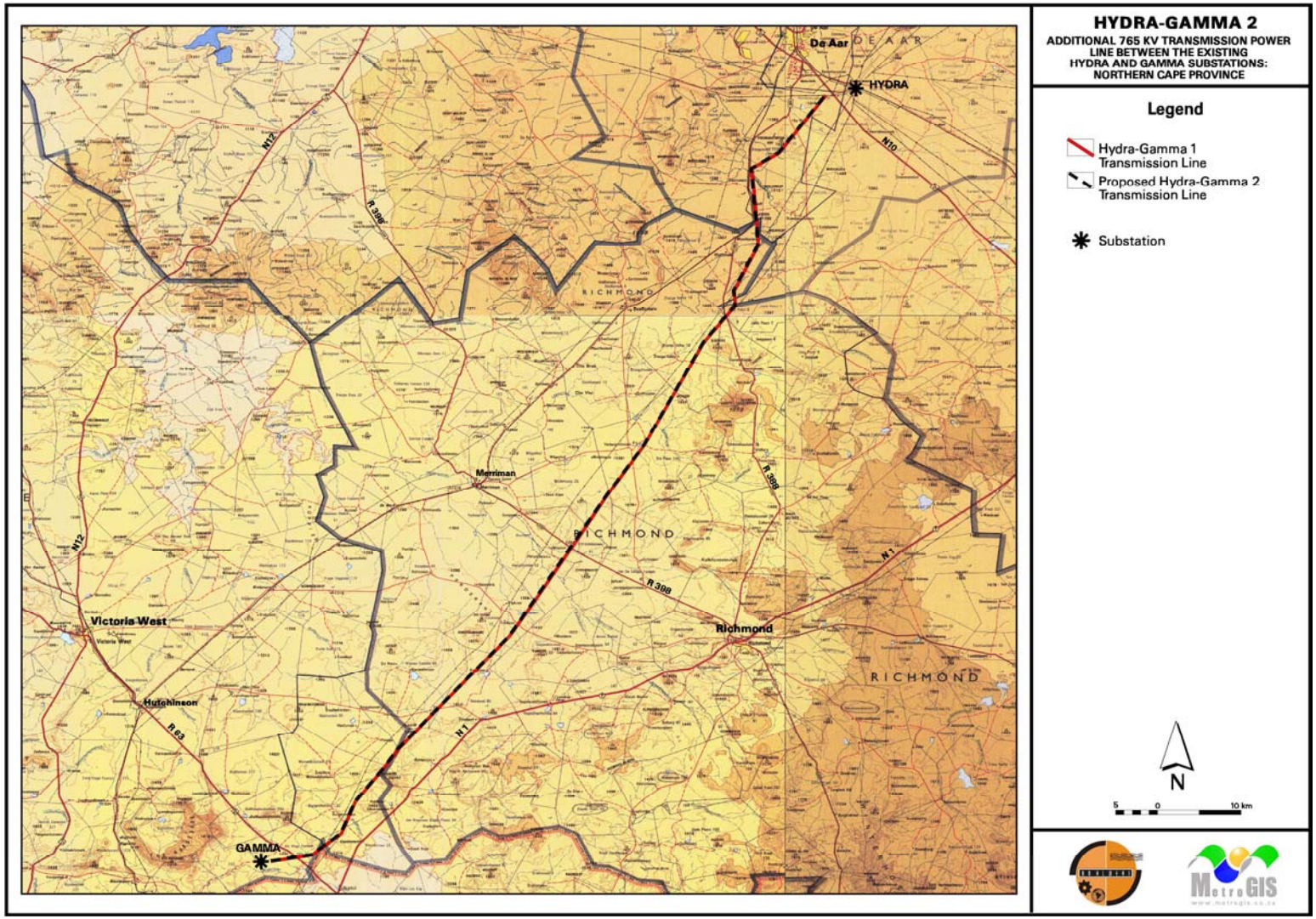

Figure 1: Proposed Hydra-Gamma 765 kV Transmission line and Gamma Substation.

Key Information Regarding the Proposed Transmission Line

- The proposed additional 765 kV Transmission power line to be constructed parallel to the existing 765 kV Hydra-Gamma 1 power line, at a distance of approximately 130 km.
- An additional 80 m wide servitude has been negotiated with the relevant landowners to accommodate the towers upon which the 765 kV voltage line is to be strung for the Hydra Gamma 2 power line.
- Currently it is proposed that either the compact cross-rope or Guyed V suspension towers will be used. The total footprint area required for each tower is 80 m x 50 m.
- Self-supporting strain towers will be utilised at bend points along the line.

Key Information regarding the proposed extension of the Hydra Substation

- The proposed extension of the 765 kV Hydra Substation will take place adjacent to the existing Hydra Substation, approximately 5 km east of De Aar, on Eskom owned property. (Refer to Figure 1)
- The proposed extension of the Hydra Substation would be approximately 250m x 200m in size, adjacent to the existing yard. (Refer to Figure 2)
- Access road relocated approximately 250 m west such that the substation extension can be accessed.

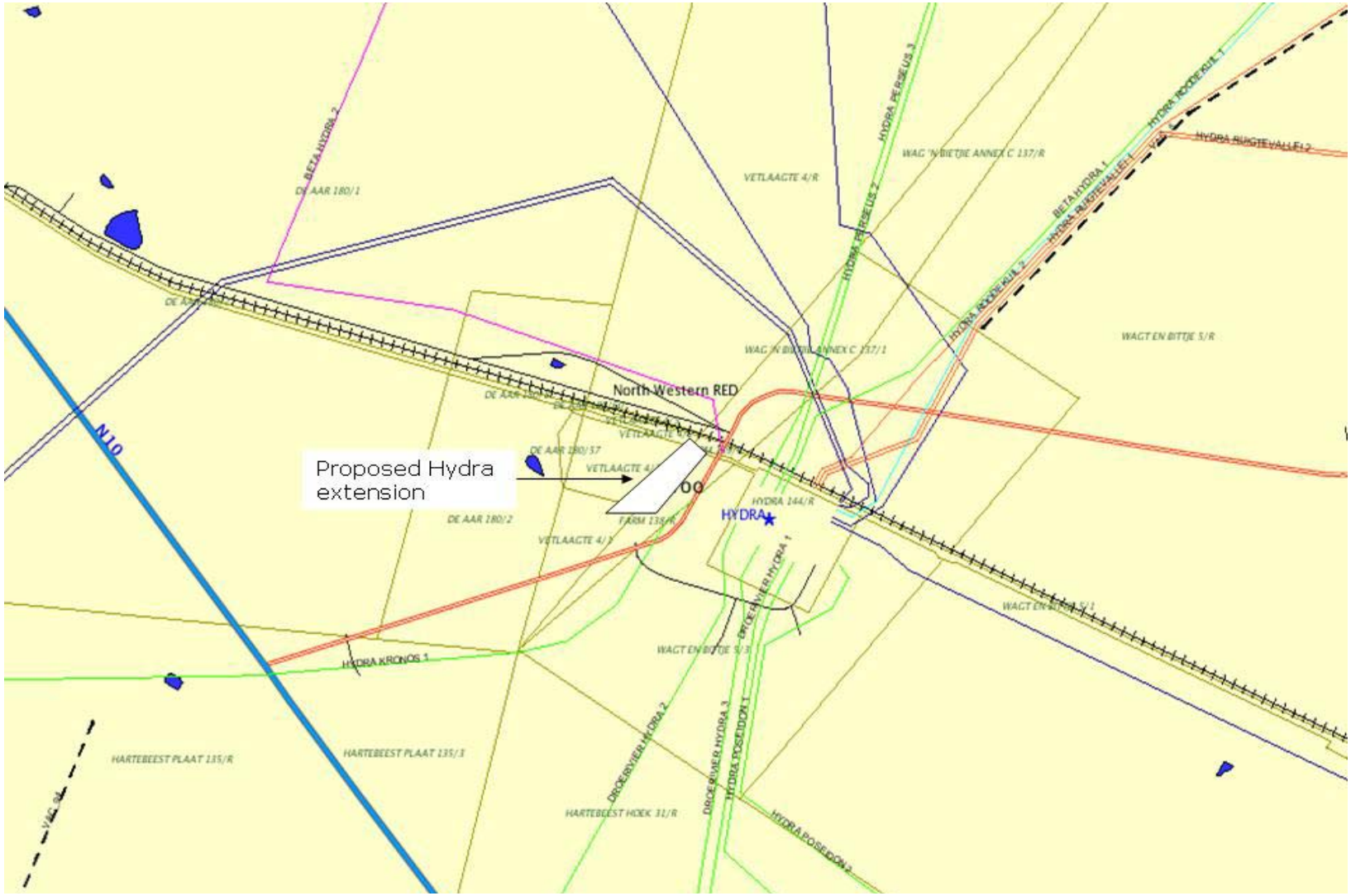

Figure 2: Proposed extension of Hydra Substation

3. TECHNICAL DETAILS OF THE PROPOSED PROJECT

Transmission line conductors are strung on in-line suspension towers and bend (strain) towers. The structures proposed to be used for the majority of the 765 kV Transmission line are the 765 kV compact cross-rope suspension structures (see Figure 2.1) These towers are approximately 50 m in height and a total footprint area of 80 m x 50 m is required for each tower. The average span between two towers is 400 m. The servitude width for a 765 kV Transmission line is 80 m. The servitude is required to ensure the safe construction, maintenance and operation of the line, and thereby entitles Eskom Transmission Division certain rights (e.g. unrestricted access). Further details regarding all construction details are included within Chapter 3

4. PROJECT ALTERNATIVES

In terms of the EIA regulations, feasible alternatives are required to be considered within the Environmental Scoping Study (ESS). All identified, feasible alternatives are required to be evaluated in terms of social, biophysical, economic and technical factors and these are discussed in further detail within Chapter 4 of the draft Environmental Scoping Report.

5. SCOPE OF ENVIRONMENTAL INVESTIGATIONS

An ESS for the proposed extension of the Hydra Substation and the proposed Hydra-Gamma 765 kV Transmission line has been undertaken in accordance with the EIA Regulations published in Government Notice No. R. 385 to No. R 387 of 2006, in terms of Section 24 (5) of the National Environmental Management Act (Act No 107 of 1998).

The ESS aimed to address the following:

- identification of potential positive and negative environmental (biophysical and social) impacts, and an evaluation of their significance in terms of the project;
- identification of "hotspots" which should be avoided where possible due to potentially significant impacts;
- description of study area for the proposed construction of the Transmission power line and extension of the Hydra Substation;
- evaluation of the nature and extent of potential environmental impacts and nomination of issues for further investigation within the EIA; and
- optimisation of positive impacts to the benefit of the local environment and community.

Impacts on, *inter alia*, topography, geology, soils and agriculture potential, land-use, fauna, flora, and the social environment were identified by means of a site

inspection, consultation with I&APs, consultation with key stakeholders, and reviewing existing information and relevant literature.

6. ENVIRONMENTAL SCOPING STUDY

The existing Hydra Substation and new Gamma Substation lie approximately 130 km apart, and are separated by a generally flat landscape, interrupted in the northern section by high broken ground and small ridges, and the Bulberg and Horseshoe Ridges in the south close to the Gamma Substation site. The broader study area (indicated by a dashed-green boundary line on Figure 1) falls within the Northern Cape Province and extends from the existing Hydra Substation near De Aar in the north to the Farm Uitvlugfontein near Victoria West in the south where the Gamma Substation is being constructed.

The ESS identifies the potential positive and negative environmental impacts of the proposed extension of the Hydra Substation and the proposed construction of an additional 765 kV Transmission power line between the Hydra and Gamma Substations, Northern Cape Province. A number of issues for consideration have been identified by the environmental team and/or raised by interested and affected parties during the consultation process. It is those issues which are anticipated to have moderated to high impacts which will be further investigated buy specialists and detailed within the EIA Report.

A summary of the potentially significant issues associated with the extension of the Hydra Substation and the Hydra-Gamma 765 kV Transmission line identified within the ESS, the area of potential impact and recommendations for investigation to be undertaken within an EIA are included in Table 1 and Table 2 overleaf.

Table 1: Summary of the **Environmental issues** associated with the extension of the **Hydra Substation** identified within the detailed Environmental Scoping Study and associated **Mitigation Measures**

Issue	Area of Potential Impact	Mitigation Measures
Topography	• Potential impacts on topography associated with the proposed project are anticipated to be localised and restricted to foundation areas associated with the proposed extension of the Hydra Substation. • Potential impacts on topography are anticipated to be of low significance. • No further Environmental studies required	No mitigation required
Climate	• The local climate is expected to have very little to no impact on the substation components. • No further Environmental studies required	No mitigation required
Surface Water	• Construction of structures close to rivers impacts on water resources through sedimentation and pollution. • Potential impacts on the surface water are, therefore, expected to be of low significance and limited to the construction phase, as the substation site is relatively flat, reducing the potential rate of soil erosion. • No further Environmental studies required	• Vegetation stripping should occur in parallel with the progress of construction in order to minimise erosion and/or runoff. • Exposed areas should be re-vegetated as soon as possible on completion of construction within each area. • To prevent sedimentation into the river channel during construction, sediment should be piled alongside the site and removed to as suitable waste disposal site as soon as possible, so as to prevent it entering the aquatic system during rain events. Should sediment have to be stored on site for a period of time, it should be away from the river channel and bunded to prevent run-off. • An Environmental Management Plan (EMP) should be compiled outlining site-specific measures which should be implemented to minimise impacts on topography and erosion.

Issue	Area of Potential Impact	Mitigation Measures
Geology and Soils	• Potential impacts associated with construction, stabilisation and re-enforcement difficulties, as well as the risk of erosion. • Erosion potential is anticipated to increase during site clearance and extension of the substation, if appropriate mitigation is not implemented • No further Environmental studies required	• As far as possible, use should be made of the existing access road to the substation site. • All areas that are disturbed during construction should be suitably rehabilitated, and, if necessary, re-vegetated with a suitable grass mix that complements the surrounding natural vegetation. • Spoil from cut areas should be used for the in-filling of erosion gulleys or be used in the rehabilitation of excavated sites, which will ultimately result in an aesthetically pleasing landform which blends in with the existing environment. • As much of the removed rock from cut areas as possible should be utilised in the construction of access roads, so as to minimise the amount of spoil material, as well as the need for excessive excavation at borrow pit areas. • Rehabilitated areas that are susceptible to erosion due to their position in the landscape should be adequately protected by soil conservation measures. • Re-vegetated areas should be monitored every 3 months for the first 12 months and once a year thereafter until the vegetation is stabilised. • Rehabilitated areas showing inadequate surface coverage (less than 30% within 9 months after rehabilitation) should be prepared and re-vegetated from scratch with a suitable grass mix that blends with the surrounding vegetation. • Damage to rehabilitated areas should be repaired promptly. • The erosion risk will be reduced significantly during the dry season, i.e. winter. Therefore, depending on the construction schedule, excavation activities should aim to be focussed during winter. • Exotic weeds and invaders that may establish on the rehabilitated areas should be controlled to allow pioneer grasses to adequately establish.

Issue	Area of Potential Impact	Mitigation Measures
Agricultural Potential	• The agricultural potential of the soils in this area is not high, due to restricted soil depth, subsoil structure and clay content, as well as the prevailing climatic conditions in the area. • Impact on agricultural potential as a result of the extension of the substation is considered to be localised and of low significance • No further Environmental studies required	No mitigation required
Vegetation and General Ecology	• The extension of the Hydra Substation will not impact on highly sensitive areas in terms of natural vegetation. The diversity in habitat associated with the vegetation type which occurs within the study area is low. • Potential impacts include: * Total destruction of the vegetation at the substation site. * Loss of rare, endangered and/or protected species. * Disturbance of natural vegetation along the access routes through trampling, compaction by motor vehicles etc. * Establishment and spread of declared weeds and alien invader plants from disturbed areas. • No further Environmental studies required	• *Total destruction of the vegetation at the substation site:* The permanent loss of vegetation within the substation area cannot be prevented. It can, however, be minimised: * Construction activities should be restricted to the minimum area needed. * Measures should be implemented to prevent spillage of concrete or other substances that could permanently destroy vegetation. * Removal of all excavated material (rocks, excess soil etc.) and construction rubble after construction is completed. • *Loss of rare, endangered and/or protected species:* The final substation site should be surveyed and verified by a vegetation specialist to determine: * the actual occurrence of threatened and or protected plant species; and to ensure that appropriate mitigation measures are taken i.e. removal of plants for genetic propagation, relocation of plants (relocation of sensitive species are seen as the last option because of the often unknown secondary impacts of the relocated plants on the receiving environment and the low probability of long term survival of the relocated specimens due to often high habitat specificity) * Where indicated, sensitive vegetation, habitat or species

Issue	Area of Potential Impact	Mitigation Measures
		populations should be adequately protected (e.g. fenced) during construction. Access to these areas should be strictly prohibited. • *Disturbance of natural vegetation along the access routes through trampling, compaction by motor vehicles etc.:* ∗ After completion of construction, all access roads that will not be used for future maintenance of the servitude should be rehabilitated and re-vegetated if necessary to blend in with the surrounding vegetation. ∗ Areas on construction sites that were visibly compacted by construction activities should be ripped to allow re-establishment of natural vegetation. • *Establishment and spread of declared weeds and alien invader plants from disturbed areas:* ∗ Monitoring the potential spread of declared weeds and invasive alien vegetation to neighbouring land and protecting the agricultural resources and soil conservation works are regulated by the Conservation of Agricultural Resources Act (No 43 of 1983) and should be addressed on a continual basis. ∗ In view of the fact that the presence of declared weeds is illegal, it is recommended that the land owner/manager comply with the following legally prescribed requirements: a) The land owner/manager must take steps to eradicate the declared weeds by using the methods prescribed in the regulations, namely – uprooting and burning, or – the application of a suitable chemical weed-

Issue	Area of Potential Impact	Mitigation Measures
		killer (herbicide), or – any other method which will ensure their permanent eradication. b) One may not uproot or remove such plants and dump or discard them elsewhere to re-grow or to allow their seeds to be spread or blown onto other properties. c) If the landowner/manager does not comply with the requirements under a) and b) above, he/she is guilty of a criminal offence.
Avifauna	• Potential impacts on bird species present in the area associated with the extension of the Hydra Substation include the removal and destruction of vegetation, and disturbance during the construction and maintenance of substations. • The destruction of vegetation inevitably results in the loss of suitable habitats for several bird species. • The construction of infrastructure of substation composition results in the permanent loss of vegetation and, as a result, can result in a permanent loss of some habitats. • Potential impacts on birds species resulting from the construction of the substation are anticipated to be localised and restricted to the substation site and access route/s and of moderate to high significance as the area is currently fallow and several bird species may have established themselves within the broader substation site. • No further Environmental studies required	In order to minimise the potential impacts on avifauna, all construction, maintenance and decommissioning activities in any natural habitat should be carried out in accordance with best environmental practice principles so as to minimise disturbance of any natural habitat.
Visual/Aesthetic Aspects	• The visual quality of the area is already impacted by developments of a similar nature. • The substation can be considered to impose a higher visual impact as a result of its larger size and low aesthetic appeal. • The construction of a new substation is anticipated to add	No mitigation required.

Issue	Area of Potential Impact	Mitigation Measures
	significantly to this visual impact, as this infrastructure is steel-intensive and considered to be visually intrusive. • This impact is, therefore, anticipated to be localised and of moderate significance. • Due to the larger size of the substation required to be constructed at Site A, it is anticipated that the visual impact associated with this development at this site will be of greater significance. • No further Environmental studies required	
Social Environment	• It is not expected that the proposed project would have any impact on employment opportunities in the area during the construction or operation of the substation. • There could be some form of influx of job seekers once the extension of the substation has started. This could have a medium-term negative impact on the surrounding landowners as it is expected that there would be quite a large permanent construction team for the construction of both the Transmission lines and the extension of the substation • It is not anticipated that the proposed extension of the substation would have a significant bearing on the Ubuntu Municipality, the local communities and/or on the local economy. • Dust and noise pollution is anticipated during the construction phase. • No further Environmental studies required	• *Employment Opportunities* * Care should be taken to avoid any potential conflict between the locals seeking employment and the outside workforce. There might be the need for some conflict resolution in this regard. * It was suggested by representatives of the Ubuntu Municipality that the Municipal Manager should be informed of the conditions of the contract to enable him to intervene (if necessary) in the case of conflict between the contractors and the local communities. * Where employment opportunities exist that would require low or medium skills levels, local labour should be used. * Eskom could undertake some skills training to maximise the opportunity for locals to secure employment. In this regard, a labour desk could be created, in consultation with the relevant local authorities, to determine the available skills in the area and the level of training required. * Where possible, on-the-job training should be provided to locals, to develop their existing skills and to ensure that they receive skills that are transferable to other sectors. • *Influx of Job Seekers and Impact on Local Population Figures* * Before construction commences, representatives from the

Issue	Area of Potential Impact	Mitigation Measures
		various local authorities, community-based organisations and agricultural unions, as well as the property owners should be consulted. Construction activities and schedules, as well as the location of the construction camps should be discussed and finalised with these representatives and the local property owners. * Illegal and disruptive practices associated with the construction camps such as the selling of liquor, illegal trade in game and livestock, cutting of fences, unauthorised entry on properties, poaching of game and sex worker trade should be avoided. A reporting system should be put in place. The Community Development Office (where locals could lodge general complaints) of the Ubuntu Municipality could serve as a platform where complaints could be lodged. * Property owners should be informed of the correct procedure for lodging complaints with regard to the behaviour of contractors and/or Eskom maintenance workers. * Should there be any dissimilarity between the local population and the outside workforce there might be the need for some conflict resolution. Pro-active conflict resolution practices should be established. * The local police services should be kept informed of the planned developments to ensure that they would be able to adequately deal with any type of disruptive behaviour. * During the operational phase of the project, it would be ideal if the Eskom workers could inform the property owners when they would access the property. * Eskom should continue with the "Gate logbook" system that is currently in place. By using this system Eskom maintenance workers can demonstrate when (date and

Issue	Area of Potential Impact	Mitigation Measures
		time) they drove drive through a gate (by referring to the position by means of the tower numbers) and whether the gate was locked, opened or closed. • *Population Change* ∗ Liaison with representatives of the Ubuntu and Emthanjeni Municipalities should continue to enable them to plan for and monitor the impacts associated with the potential population change. • *Disruption in Daily Living and Movement Patterns and Impact on Land-use* ∗ Affected landowners and residents should be notified regarding the construction and maintenance schedules associated with the Hydra Substation extension. ∗ Construction activities, should as far as possible, be scheduled not to coincide with the main hunting and/or lambing season. ∗ The construction camps should be organised in such a manner as to have the least negative impact on the surrounding landowners and local communities. Strict guidelines should be developed to ensure good conduct and these guidelines should be stipulated in the Environmental Management Plan and construction contract. ∗ An on-site Environmental Officer should monitor the contractors responsible for the construction activities. ∗ The erection of uncontrolled informal dwellings at the construction camps should be avoided. ∗ Although the contractor cannot be held responsible for the conduct of the construction workers (especially after hour conduct), the guidelines as stipulated in the Environmental Management Plan regarding the operation and management of the construction camps should be

Issue	Area of Potential Impact	Mitigation Measures
		strictly adhered to. • *Impacts on Land and Resource Use* ∗ Affected landowners and residents should be notified regarding the construction and maintenance schedules associated with the Hydra Substation extension. ∗ Construction activities, should as far as possible, be scheduled not to coincide with the main hunting and/or lambing season. ∗ As the impacts on the veld and erosion were noted as grave concerns, contractors should be forced to only utilise existing roads and paths and avoid the creation of additional roads. Fines and penalties should be imposed where this condition is not adhered to. ∗ Eskom should liaise with the lessee on the farm Uitvlugtfontein and pro-actively address the possible impact on the land and resource use of the lessee. • *Impact on Infrastructure and Services* ∗ The construction camp management should adhere to the guidelines as stipulated in the Environmental Management Plan. • *Impact on Local Economy and Regional Benefits* ∗ Eskom could assist with local skills training to maximise the potential of the local community to establish indirect jobs through the supplying of goods and services to the construction work force. ∗ The final route alignment should be negotiated to have the least negative economic impact on the property owners. ∗ During the construction phase care should be taken to avoid any negative impacts on farming activities in the area. ∗ Eskom should ensure appropriate valuation of the land,

Issue	Area of Potential Impact	Mitigation Measures
		taking the impact of the Transmission line on the property into account, and determine adequate compensation accordingly. ∗ Eskom should avoid lengthy negotiation procedures where possible. • *Health Impacts* ∗ Eskom should commit itself to building a substation that would not be harmful to the health of any residents. ∗ Any possible exposure effects and related health concerns should be mitigated through the application of relevant design standards. ∗ Contractors should not leave any waste behind upon closure of the construction camp. ∗ Eskom and/or the contractor should provide basic on-site health care facilities for the construction workers. ∗ Adequate and appropriate sanitation and wastewater management facilities should be implemented as specified in the Environmental Management Plan. ∗ Eskom should liaise with the local authorities and health care practitioners with regard to service requirements and the establishment of an emergency plan in the case of accidents. ∗ Aids Awareness Campaigns should be intensified during the construction phase of the project. These could possibly link with the existing work undertaken by the Apollo Love Life centre.
Tourism Potential	• The impact of the proposed project is not considered to be significant, as the farms in the study area already have lines running across them and there are existing routes for maintenance teams to gain access to the substations. • No further Environmental studies required	No mitigation required.
Sites of	• Several wall structures were observed within the broader area	If an artefact is uncovered on site, work in the immediate vicinity

Issue	Area of Potential Impact	Mitigation Measures
Archaeological, Cultural and Historical Interest	during a site inspection of the area. • The construction of the substation is, however, not anticipated to impact on these structures as these are located along the periphery of the proposed sites. • No further Environmental studies required	shall be stopped. Reasonable precautions must be taken to prevent any person from removing or damaging any artefacts. In addition, the local Provincial office of the South African Heritage Resources Agency (SAHRA) or the National Monuments Council must be informed such that a heritage consultant can be appointed to record the site and excavate if necessary. Work may only resume once clearance is given in writing by the heritage consultant. If a grave is uncovered on site or discovered before commencement of work, all work in the immediate vicinity of the grave shall be stopped. Arrangements must be made for an undertaker to carry out an exhumation and reburial. The undertaker will, together with the National Monuments Council, be responsible for attempts to contact the family of the deceased and for the site where the exhumed remains can be re-interred. It should be noted that any graves older than 60 years can only be exhumed by an archaeologist. Graves of victims of conflict requires additional permits from SAHRA before they can be relocated.

Table 2: Summary of the **Environmental issues** associated with the construction of the 765 kV **Hydra-Gamma 2 Transmission line** identified within the detailed Environmental Scoping Study and associated **mitigation measures.**

Issue	Area of Potential Impact	Mitigation Measures
Topography	• Potential impacts on topography associated with the construction of the Transmission line are anticipated to be localised and restricted to foundation areas associated with the Transmission line towers • Potential impact associated with towers is anticipated to be negligible as Eskom tend to select Transmission line corridors which avoid areas which are impassable, thus minimising the need to disrupt the local topography. • No further Environmental studies required	No mitigation required
Climate	• The local climate is expected to have very little to no impact on the Transmission line infrastructure. • No further Environmental studies required	No mitigation required
Surface Water	• Construction of structures close to rivers impacts on water resources through sedimentation and pollution. • It is not considered technically feasible by Eskom to locate tower positions within a floodplain. Therefore, the impact on surface water as a result of the construction and operation of the Transmission line is anticipated to be negligible. • No further Environmental studies required	• Wetlands and streambanks should be avoided as far as possible. • Placement of tower structures should be outside of the 1:50 year flood lines • Where new access roads are required to be constructed, these should not disturb the natural drainage patterns of the area. If streams are crossed, special attention should be given to prevent impairment of natural drainage patterns. • Vegetation stripping should occur in parallel with the progress of construction in order to minimise erosion and/or runoff. • Exposed areas should be re-vegetated as soon as possible on completion of construction within each area. • To prevent sedimentation into river channels during construction, sediment should be piled alongside the construction site and removed to as suitable waste disposal

Issue	Area of Potential Impact	Mitigation Measures
		site as soon as possible, so as to prevent it entering the aquatic system during rain events. Should sediment have to be stored on site for a period of time, it should be away from the river channel and bunded to prevent run-off. • Construction activities should be limited to the servitude areas, especially in areas where sensitive vegetation and surface water bodies occur. • Adequate numbers and placement of portable chemical toilet facilities at construction sites is crucial to prevent unnecessary pollution of the surrounding surface and groundwater, and vegetation. • Littering should be prevented. Adequate containers for litter removal should be supplied on site. These containers should be emptied on a regular basis and the contents removed to an appropriate and licensed waste disposal site. • After completion of construction, the site should be properly cleaned of any construction waste, litter etc. and properly rehabilitated/re-vegetated. • An Environmental Management Plan (EMP) should be compiled outlining site-specific measures which should be implemented to minimise impacts on topography and erosion.
Geology and Soils	• Potential impacts associated with construction, stabilisation and re-enforcement difficulties, as well as the risk of erosion. • Erosion potential is anticipated to increase during site clearance and construction of the Transmission line, if appropriate mitigation is not implemented. • Erosion potential is anticipated to increase with the construction and maintenance of the access/service road to the substation, particularly in those areas with soils prone to erosion. • With the construction of the proposed Transmission line parallel	• As far as possible, use should be made of existing access/service roads during the construction and maintenance of the Transmission line. • Prior to any construction commencing, it must be ensured that erosion problems on existing access/service roads are addressed. • Maintenance of access/service roads should be on-going throughout the life cycle of the Transmission line. • All areas that are disturbed during construction should be

Issue	Area of Potential Impact	Mitigation Measures
	to the existing Hydra-Droërivier 400 kV Transmission line, existing access roads can be utilised, which will decrease the potential for erosion. This in turn will limit the impacts associated with geology and soils. • No further Environmental studies required	suitably rehabilitated, and, if necessary, re-vegetated with a suitable grass mix that complements the surrounding natural vegetation. • Spoil from tower foundations should be used for the in-filling of erosion gulleys or be used in the rehabilitation, which will ultimately result in an aesthetically pleasing landform which blends in with the existing environment. • As much of the removed rock from foundation areas as possible should be utilised in the construction of access roads (where required), so as to minimise the amount of spoil material, as well as the need for excessive excavation at borrow pit areas. • Rehabilitated areas that are susceptible to erosion due to their position in the landscape should be adequately protected by soil conservation measures. • Re-vegetated areas should be monitored every 3 months for the first 12 months and once a year thereafter until the vegetation is stabilised. • Rehabilitated areas showing inadequate surface coverage (less than 30% within 9 months after rehabilitation) should be prepared and re-vegetated from scratch with a suitable grass mix that blends with the surrounding vegetation. • Damage to rehabilitated areas should be repaired promptly. • As the erosion risk will be reduced significantly during the dry season, i.e. winter, excavation activities should be undertaken within this period, where possible. • Exotic weeds and invaders that may establish on the rehabilitated areas should be controlled to allow pioneer grasses to adequately establish. • An Environmental Management Plan (EMP) should be compiled

Issue	Area of Potential Impact	Mitigation Measures
		outlining site-specific measures which should be implemented to minimise impacts on topography and erosion.
Agricultural Potential	• The agricultural potential of the soils in this area is not high, due to restricted soil depth, subsoil structure and clay content, as well as the prevailing climatic conditions in the area. • Impact on agricultural potential as a result of the establishment of the Transmission line is considered to be localised and of low significance • No further Environmental studies required	No mitigation required
Vegetation and General Ecology	• The construction of the proposed Transmission line is not anticipated to impact on highly sensitive areas in terms of natural vegetation. • The diversity in habitat within the study area is low along most of the proposed Transmission alignment. As a result, the vegetation is very uniform. • Potential impacts include: ∗ Total destruction of the vegetation/loss of biodiversity at the footprint area of all the tower structures. ∗ Fragmentation of undisturbed vegetation and/or grazing. ∗ Loss of rare, endangered and/or protected species. ∗ Disturbance of natural vegetation along the access routes ∗ Destruction/permanent loss of rare, endangered and/or protected species. ∗ Impairment/loss of function of the wetland areas. ∗ Pollution of the surface and or ground water with petrol, diesel, oil, cement, paint, litter etc. ∗ Accelerated soil erosion, increase in silt loads and sedimentation (especially along the steeper slopes), because of soil disturbance, increased run-off from compacted areas etc.	• *Disturbance of livestock and game during construction and maintenance activities:* ∗ Eskom should notify the landowners regarding access requirements to their property in advance of construction and maintenance such that they can make appropriate arrangements for any sensitive animal species on their property. ∗ Contractors must take note of the nature of the area, and should adhere to the specifications contained within the EMP regarding working hours and noise levels such that disturbance to animals and tourists is limited. ∗ Excavated tower foundations should be appropriately covered in order to prevent injury to livestock and game. • *Total destruction of the vegetation at the tower footprint:* The permanent loss of vegetation at the tower footprint area cannot be prevented. It can, however, be minimised through the implementation of the following mitigation measures: ∗ Construction activities should be restricted to the minimum area needed. ∗ Measures should be implemented to prevent spillage of

Issue	Area of Potential Impact	Mitigation Measures
	* Establishment and spread of declared weeds and alien invader plants from disturbed areas. • No further Environmental studies required	concrete or other substances that could permanently destroy vegetation. * Removal of all excavated material (rocks, excess soil etc.) and construction rubble after construction is completed. • *Loss of rare, endangered and/or protected species:* The final substation site should be surveyed and verified by a vegetation specialist to determine: * the actual occurrence of threatened and or protected plant species; and to ensure that appropriate mitigation measures are taken i.e. removal of plants for genetic propagation, relocation of plants (relocation of sensitive species are seen as the last option because of the often unknown secondary impacts of the relocated plants on the receiving environment and the low probability of long term survival of the relocated specimens due to often high habitat specificity) * Where indicated, sensitive vegetation, habitat or species populations should be adequately protected (e.g. fenced) during construction. Access to these areas should be strictly prohibited. • *Disturbance of natural vegetation along the access routes through trampling, compaction by motor vehicles, etc.:* * Optimal use should be made of existing access roads such that construction of new access roads is minimised. * No movement of any construction vehicles along the access routes should be allowed after heavy rains until the surface has dried out sufficiently. Heavy penalty fines should be added to the contract for non-conformance. * Construction vehicles must stay within the servitude area and may under no circumstances venture into the

Issue	Area of Potential Impact	Mitigation Measures
		adjacent property. Heavy penalty fines should be added to the contract for non-conformance. * After completion of construction, all access roads that will not be used for future maintenance of the servitude should be rehabilitated and re-vegetated if necessary to blend in with the surrounding vegetation. * Areas on construction sites that were visibly compacted by construction activities should be ripped to allow re-establishment of natural vegetation. • *Establishment and spread of declared weeds and alien invader plants from disturbed areas:* * Monitoring the potential spread of declared weeds and invasive alien vegetation to neighbouring land and protecting the agricultural resources and soil conservation works are regulated by the Conservation of Agricultural Resources Act (No 43 of 1983) and should be addressed by Eskom on a continual basis. * In view of the fact that the presence of declared weeds is illegal, Eskom are required to comply with the following legally prescribed requirements: d) Take steps to eradicate the declared weeds by using the methods prescribed in the regulations, namely – uprooting and burning, or – the application of a suitable chemical weed-killer (herbicide), or – any other method which will ensure their permanent eradication. e) One may not uproot or remove such plants and dump or discard them elsewhere to re-grow or to

Issue	Area of Potential Impact	Mitigation Measures
		allow their seeds to be spread or blown onto other properties. f) Non-compliance with the requirements under a) and b) above will result in Eskom being guilty of a criminal offence.
Avifauna	• Potential impacts on bird species present in the area associated with the construction of a Transmission line include collisions, electrocutions, the removal and destruction of vegetation, and disturbance during the construction and maintenance of the line. • Other problems include electrical faults caused by bird excreta when roosting or breeding on electricity infrastructure • Potential impacts on avifauna as a result of the construction of the proposed Transmission line parallel to the existing Hydra-Droërivier No 2 400 kV line are anticipated to be of low significance since there are existing Transmission lines and associated infrastructure in close proximity to the study area.. • No further Environmental studies required	• *Collision with overhead power line* In order to minimise the impacts summarised above, the following mitigation measures are recommended: * A suitable marking device should be fitted to earth wires on all sections of line passing across a dam or adjacent to a dam. * A suitable marking device should be fitted to earth wires on all sections of line passing through flats or plains. * Collision of Secretary birds can occur almost anywhere along the Transmission line. This makes mitigation difficult. This study suggests that the entire line be patrolled annually once constructed such that any "hot spots" for collision of this and other species can be detected. • *Habitat loss or degradation during construction and maintenance* In order to minimise the impacts summarised above, the following mitigation measures are recommended: * All construction, maintenance and decommissioning activities in any natural habitat along the route of the Transmission line should be carried out in accordance with best environmental practice principles so as to minimise disturbance of any natural habitat. • *Disturbance during construction and maintenance* In order to minimise the impacts summarised above, the

Issue	Area of Potential Impact	Mitigation Measures
		following mitigation measures are recommended: * The EWT should be consulted regarding eagles breeding as they are in possession of a database of pairs of eagles nesting on the existing Hydra-Droërivier No 2, 400 kV Transmission line (as this line is continually monitored as part of the Electric Eagle project). Sensitive areas of the line can then be identified and efforts can be made to minimise the disturbance in these areas if construction of the new Hydra-Gamma line occurs during the eagles breeding season. * All construction, maintenance and decommissioning activities in any natural habitat along the route of the power line should be carried out in accordance with best environmental practice principles so as to minimise disturbance to any bird species present. • *Nesting* No mitigation is required.
Visual/Aesthetic Aspects	• The study area is impacted by existing power line infrastructure to varying degrees. • The proposed Transmission line traverses an area with higher grounds and ridges, and passes through limited areas consisting of flat areas and plains. The construction of the proposed Transmission line parallel to the existing Hydra-Droërivier No 2 400 kV line is not anticipated to add significantly to the existing visual impact in the area. • No further Environmental studies required	No mitigation required
Social Environment	• It is not expected that the proposed project would have any impact on employment opportunities in the area during the construction or operation of the substation. • It is not anticipated that the proposed Transmission line would	• *Employment opportunities* * Care should be taken to avoid any potential conflict between the locals seeking employment and the outside workforce. There may be the need for some conflict

Issue	Area of Potential Impact	Mitigation Measures
	have a significant bearing on the Ubuntu and Emthanjeni Municipalities, the local communities and/or on the local economy. • Concerns have been raised with regards to the alignment of the Transmission line near residences, worker accommodation, as well as near accommodation facilities catering for tourists and seasonal hunters. • Perceived uncontrolled access to properties could be worsened if there are a number of lines scattered over a property. • Dust and noise pollution anticipated during the construction phase. • No further Environmental studies required	resolution in this regard. * It was suggested by representatives of the Ubuntu Municipality that the Municipal Manager should be informed of the conditions of the contract to enable him to intervene (if necessary) in the case of conflict between the contractors and the local communities. * Where employment opportunities exist that would require low or medium skills levels, local labour should be used. * Eskom could undertake some skills training to maximise the opportunity for locals to secure employment. In this regard, a labour desk could be created, in consultation with the relevant local authorities, to determine the available skills in the area and the level of training required. * Where possible, on-the-job training should be provided to locals, to develop their existing skills and to ensure that they receive skills that are transferable to other sectors. • *Influx of job seekers and impact on local population figures* * Before construction commences, representatives from the various local authorities, community-based organisations and agricultural unions, as well as the property owners should be consulted. Construction activities and schedules, as well as the location of the construction camps should be discussed and finalised with these representatives and the local property owners. * Illegal and disruptive practices associated with the construction camps such as the selling of liquor, illegal trade in game and livestock, cutting of fences, unauthorised entry on properties, poaching of game and sex worker trade should be avoided. A reporting system

Issue	Area of Potential Impact	Mitigation Measures
		should be put in place. The Community Development Office (where locals could lodge general complaints) of the Ubuntu Municipality could serve as a platform where complaints could be lodged. * Property owners should be informed of the correct procedure for lodging complaints with regard to the behaviour of contractors and/or Eskom maintenance workers. * Should there be any dissimilarity between the local population and the outside workforce there might be the need for some conflict resolution. Pro-active conflict resolution practices should be established. * The local police services should be kept informed of the planned developments to ensure that they would be able to adequately deal with any type of disruptive behaviour. * During the operational phase of the project, it would be ideal if the Eskom workers could inform the property owners when they would access the property. * Eskom should continue with the "Gate logbook" system that is currently in place. By using this system Eskom maintenance workers can demonstrate when (date and time) they drove drive through a gate (by referring to the position by means of the tower numbers) and whether the gate was locked, opened or closed. • *Population change* * Liaison with representatives of the Ubuntu and Emthanjeni Municipalities should continue to enable them to plan for and monitor the impacts associated with the potential population change. • *Residential proximity:*

Issue	Area of Potential Impact	Mitigation Measures
		* The final route of the Transmission line should, as far as possible, avoid areas of residential development (private residences, worker accommodation and tourist related accommodation facilities) to ensure that the effects on the property owners and tourists in the study area are minimised. * Should the final alignment be located near residences, the property owners should be consulted with regard to the construction schedule and possible intrusion impacts associated with the construction phase. The negative impacts associated with construction activities should be minimised as far as possible. • *Disruption in daily living and movement patterns & impact on land-use* * Affected property owners should be notified regarding the construction schedule, as well as the maintenance work schedule. * As far as possible, use should be made of existing access/service roads. * Construction activities, should as far as possible, be scheduled not to coincide with the main hunting and/or lambing season. * Construction camps should be organised in such a manner as to have the least negative impact on the surrounding landowners and local communities. Strict guidelines should be developed to ensure good conduct and these guidelines should be stipulated in the Environmental Management Plan and construction contract. * An on-site Environmental Officer should monitor the contractors responsible for the construction activities.

Issue	Area of Potential Impact	Mitigation Measures
		* The erection of uncontrolled informal dwellings at the construction camps should be avoided. * Although the contractor cannot be held responsible for the conduct (especially after hour conduct) of the construction workers, the guidelines as stipulated in the Environmental Management Plan regarding the operation and management of the construction camps should be strictly adhered to. • *Impacts on land and resource use* * Property owners should be notified of the construction schedule and the maintenance work to be undertaken on properties. * Construction activities, should as far as possible, be scheduled not to coincide with the main hunting and/or lambing season. * Contractors should, at all times, be responsible and act in good faith. * As the impacts on the veld and erosion were noted as grave concerns, contractors should be forced to only utilise existing roads and paths and avoid the creation of additional roads. Fines and penalties should be imposed where this condition is not adhered to. * Strict enforcement of the guidelines should take place. * Livestock and game should, where possible, be moved away from the construction activities or be fenced off without disturbing the rotational grazing system on the farm in question. * Eskom should sensitively deal with concerns regarding the impact on property values and land and resource use. * The final route alignment should be communicated and

Issue	Area of Potential Impact	Mitigation Measures
		negotiated with the property owners to ensure the minimum negative financial impact on the property owners. * In finalising the route alignment, care should be taken to avoid sensitive areas. • *Formation of attitudes* * The construction of the power line near residential developments, tourist facilities and worker accommodation, as well as other hot spots (e.g. airfields, centre pivots etc.) should be avoided as far as possible. * Eskom should take note of the concerns raised with regards to the construction phase of the proposed Transmission line. * Eskom should take note of the alignment preferences of the individual property owners and their concerns regarding the impacts of a new or an additional power line on their property. These issues must be addressed during the negotiation phase to be undertaken by Eskom. * Eskom should attend to the existing erosion problems and neglected service and access roads used to access the existing 400 kV Transmission line servitude as soon as possible. * Eskom should continue to communicate with the property owners and inform them of the progress of the proposed project. • *Impact on infrastructure and services* * In finalising the Transmission line alignment within the selected corridor, Eskom should liaise with the relevant government departments and property owners to identify any possible infrastructure that could be impacted upon.

Issue	Area of Potential Impact	Mitigation Measures
		* Areas with landing strips and centre pivot systems should be avoided as far as possible. * Construction camp management should adhere to the guidelines as stipulated in the Environmental Management Plan. • *Impact on local economy and regional benefits* * Eskom could assist with local skills training to maximise the potential of the local community to establish indirect jobs through the supplying of goods and services to the construction work force. * The final route alignment should be negotiated to have the least negative economic impact on the property owners. * During the construction phase care should be taken to avoid any negative impacts on farming activities in the area. * Eskom should ensure appropriate valuation of the land, taking the impact of the Transmission line on the property into account, and determine adequate compensation accordingly. * Eskom should avoid lengthy negotiation procedures where possible. • *Safety and security impacts* * Eskom should notify property owners of the construction and maintenance schedules. * Eskom should utilise the latest technology to prevent any fire hazards. * The fire prevention measures as stipulated in the Environmental Management Plan should be strictly adhered to.

Issue	Area of Potential Impact	Mitigation Measures
		* Eskom should select the best possible designs and support structures for Transmission line towers. * Eskom should adopt high safety standards to ensure that safety and security risks are minimised. * Emergency plans should be developed and implemented in consultation with the property owners and Local Municipalities. • *Health impacts* * Eskom should continue to monitor studies on the subject of EMFs and should make any new information available to communities. * Eskom should commit itself to building a Transmission line that would not be harmful to the health of any residents (e.g. such as the safety exclusion zone of 80 meters). * Any possible exposure effects and related health concerns should be mitigated through the application of relevant design standards. * Contractors should not leave any waste behind upon closure of the construction camp. * Eskom and/or the contractor should provide basic on-site health care facilities for the construction workers. * Adequate and appropriate sanitation and wastewater management facilities should be implemented as specified in the Environmental Management Plan. * Eskom should liaise with the local authorities and health care practitioners with regard to service requirements and the establishment of an emergency plan in the case of accidents. * Aids Awareness Campaigns should be intensified during

Issue	Area of Potential Impact	Mitigation Measures
		the construction phase of the project. These could possibly link with the existing work undertaken by the Apollo Love Life centre.
Tourism Potential	• Various farms with existing or potential future tourism operations would be impacted upon by the construction of the proposed transmission line. • Potential impacts include impacts on visitor numbers, visual impacts on lodges and hunting activities, visual impacts on future tourism prospects and potential impacts on land value. • As the Transmission line is proposed to be constructed parallel to the existing Hydra-Droërivier No. 2, 400 kV Transmission line the visual impact is not anticipated to be of high significance, although there may be some impact on hunting operations on the farm Nuwejaarsfontein's during the construction phase. • Potential tourism impact of the substation is negligible, as Eskom owns the land where the proposed substation is to be constructed and no tourism establishments exist on the property • No further Environmental studies required	No mitigation required
Sites of Archaeological, Cultural and Historical Interest	• Several sites recorded within the broader study area. • Potential impacts on heritage sites are anticipated to occur with the construction of the proposed Transmission line, unless appropriate mitigation measures are implemented, irrespective of the corridor selected. • The potential impacts may be reduced through the construction of the proposed Transmission line parallel to the existing Hydra-Droërivier No 2 400 kV line as this area has been historically disturbed as a result of the construction of the existing Transmission lines and associated infrastructure • No further Environmental studies required	Once the final Transmission line alignment has been determined and the tower positions identified, sections of the route which are deemed to be in potentially sensitive locations should be inspected in detail by a suitably qualified heritage specialist. If an artefact is uncovered on site, work in the immediate vicinity shall be stopped. Reasonable precautions must be taken to prevent any person from removing or damaging any artefacts. In addition, the local Provincial office of the South African Heritage Resources Agency (SAHRA) or the National Monuments Council must be informed such that a heritage consultant can be appointed

Issue	Area of Potential Impact	Mitigation Measures
		to record the site and excavate if necessary. Work may only resume once clearance is given in writing by the heritage consultant. If a grave is uncovered on site or discovered before commencement of work, all work in the immediate vicinity of the grave shall be stopped. Arrangements must be made for an undertaker to carry out an exhumation and reburial. The undertaker will, together with the National Monuments Council, be responsible for attempts to contact the family of the deceased and for the site where the exhumed remains can be re-interred. It should be noted that any graves older than 60 years can only be exhumed by an archaeologist. Graves of victims of conflict requires additional permits from SAHRA before they can be relocated.

7. RECOMMENDATIONS AND WAY FORWARD

The findings of the specialist studies undertaken within this detailed Scoping Study provide an assessment of both the benefits and potential negative impacts anticipated as a result of the proposed project. The findings conclude that there are no environmental fatal flaws that should prevent the proposed project from proceeding, provided that the recommended mitigation and management measures are implemented.