Table 1: Impacts Summary

Development Phase	Impact	Direct/ Indirect/ Cumulative	Applicable alternative	Mitigation	Post mitigation significance
Construction	Disturbance, Destruction and damages to heritage resources	Direct; Cumulative	S1; S2	• *Should any heritage objects be exposed during excavation, work on that area should cease immediately and the historian should be informed immediately.* • *All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made.*	Medium negative (-9.00)
	Impact on paleontological resources	Direct; Cumulative	S1; S2	• *The developer and the ECO of the project must be informed of the fact that Stromatolites have been recorded from the Monte Christo Formation and it is also possible that Caenozoic cave deposits may be present.* • *If fossils are observed, a trained palaeontologist must be appointed to collect the fossils according to SAHRA specifications.*	Medium negative (-10.00)
	Impact on cultural landscapes	Direct; Cumulative	S1; S2	• *Screening of construction activities as per usual construction requirements is recommended. Monitoring of excavation activity by a palaeontologist may be necessary, depending on the size and depth of the footprint of the pylons to be used.*	Low negative (-6.00)
	Loss/fragmentation of natural vegetation	Direct;	S1;	• *Use existing service roads / access roads.* • *Keep impacts within servitude of the powerline.* • *Clear only necessary footprint of tower structures.* • *Rehabilitate disturbed areas as soon as possible*	Low negative (-9.00)
	Loss/fragmentation of natural vegetation	Direct;	S2	• *Use existing service roads / access roads.* • *Keep impacts within servitude of the powerline.* • *Clear only necessary footprint of tower structures.* • *Rehabilitate disturbed areas as soon as possible*	Low negative (-12.00)
	Impacts on threatened plants	Direct; Cumulative	S1; S2	• *Minimize the extent of vegetation removal to the construction footprint only.* • *Avoid unnecessary impacts on natural vegetation* • *Impacts should be contained, as much as possible, within the servitude of the proposed development.*	Low negative (-1.17)

				➢ *The removal, damage or disturbance of any flora within or outside the construction area is not permitted unless specifically authorised by the ECO.* ➢ *Vegetation clearing shall take place in a phased (if possible) manner in order to retain vegetation cover for as long as possible.* ➢ *Search and rescue activities for bulbous plants and other sensitive areas identified during the Impact Assessment process. These plants are to be stored in a designated nursery until they can be re-introduced to the area. All plants must be well documented throughout the search and rescue to enable correct relocation.* ➢ *License application is required for the removal and destruction of protected species through the provincial Department of Environmental Affairs and the Department of Forestry.* ➢ *Rehabilitation and re-vegetation of the disturbed areas should be done immediately after completion of a particular section of construction with indigenous species and should be done to the satisfaction of the ECO and the DEA.*	
	Loss/fragmentation of habitat for threatened terrestrial fauna	Direct; Indirect; Cumulative	S1; S2	➢ *Clearing should be undertaken when it is necessary and only within the development footprint.*	Low negative (-1.17)
	Disturbance to birds	Direct; Indirect;	S1; S2	➢ *Strict control should be maintained over all activities during construction.* ➢ *During construction, if any of the Focal Species identified in this report are observed to be roosting and/or breeding in the vicinity (within 500m of the power lines), the EWT is to be contacted for further instruction. It is understood that this phase will be short, temporary and localised in its impacts.* *It is recommended that a "walk down" take place to address any infrastructure sitting issues that may occur.*	Low negative (-6.75)
	Habitat destruction	Direct; Indirect Cumulative	S1	➢ *Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff. It is important to ensure*	Low negative (-7.00)

				that the construction Environmental Management Programme incorporates guidelines as to how best to minimize this impact specifically on existing natural grasslands. - *It is understood that this phase will be short, temporary and localised in its impacts. It is recommended that a "walk down" take place to address any infrastructure sitting issues that may occur.*	
	Habitat Destruction	Direct; Indirect; Cumulative	S2	- *Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff. It is important to ensure that the construction Environmental Management Programme incorporates guidelines as to how best to minimize this impact specifically on existing natural grasslands.* - *It is understood that this phase will be short, temporary and localised in its impacts. It is recommended that a "walk down" take place to address any infrastructure sitting issues that may occur.*	Medium Negative (-9.00)
	Establishment and spread of declared weeds and alien invader plants	Direct; Indirect Cumulative	S1;S2	- *Areas disturbed due to construction activities should be rehabilitated as quickly as possible.* - *Soil stockpiles should not be translocated from areas with alien plants into the site and within the site alien plants on stockpiles must be controlled so as to avoid the development of a soil seed bank of alien plants within the stock-piled soil.* - *Any alien plants must be immediately controlled to avoid establishment of a soil seed bank.* - *An ongoing monitoring programme should be implemented to detect and quantify any aliens that may become established and provide information for the management of aliens. This should form part of an alien management programme*	Low negative (-1.00)
	Dust Pollution	Direct; Indirect Cumulative	S1; S2	- *Vegetation clearance must be kept to a minimum and exposed soils must be regularly sprayed.* - *The ambient air quality standard of the national Environmental Management: Air Quality Act must be complied with (GNR 1210 of December 2009), specifically*	Low negative (-5.25)

				pertaining to particulate matter (PM10). Where topsoil's and sub-soils are removed these must be protected from excessive wind erosion.	
	Noise pollution	Direct; Indirect; Cumulative	S1; S2	• *Vegetation clearance must be kept to a minimum and exposed soils must be regularly sprayed. All construction vehicles must be serviced regularly to control gaseous exhaust emissions and noise.* • *Working hours to be restricted to 07h00 to 18h00 weekdays and 09h00 to 16h00 on weekends.* • *The regulatory noise requirements must be complied with. With regards to noise, the provisions of Section 25 of the Environment Conservation Act (Act 73 of 1989); the related noise control regulations (Noise Regulations (GNR 154 of 1992)); and the provisions of SANS 10103, must be complied with.*	Low negative (-5.25)
	Soil and water (surface and ground) pollution	Direct; Indirect; Cumulative	S1; S2	• *Storage and application of hazardous substances must be done in accordance with best practice standards, and where necessary a bund must be provided.* • *Hazardous substances must be stored in a secure location isolated from direct contact with the soils and covered where necessary. Pollution of the surface water and aquifer is to be prevented at all costs.* • *A spill response procedure must be prepared and applied. Concrete, cement and other hazardous substances required during construction must be stored and where applicable mixed on an impermeable layer acting as a barrier to direct contact with the soils.* • *Spillages and excess water from these areas must not be discharged into the environment but contained, collected and disposed of at a suitably licensed facility.* • *Ablution facilities (chemical toilets, septic tanks, French drains, etc) must be installed according to the relevant manufacturers' specifications, outside of the 1:100 year floodline/drainage lines/ wetlands, and best environmental practice must be maintained to ensure that no pollution from effluents occurs.* • *All contaminated effluents, wastes, and soils, must be*	Medium Positive (-16.00)

				collected and disposed of at a suitably licensed facility. - *Vehicles must be maintained to proactively prevent unnecessary spills (fuels, lubricants, etc).* - *All working fronts must be provided with a spill containment kit to contain and collect spills. All spills must be reported to the appointed ECO.* - *A suitable stormwater management plan must be prepared for the construction camp and any facilities utilised for the storage of hazardous substances must be approved by the ECO and the relevant engineer.*	
	Waste Generation	Direct;	S1; S2	- *A Waste Management Plan (WMP) must be prepared and implemented throughout construction. This Plan must include measures for waste sorting for the purpose of recycling where feasible. The WMP must include a water conservation and management plan which should aim to reduce, and re-use water where possible. A dedicated waste collection and storage facility must be prepared and this should be emptied and collected wastes disposed of on a regular basis. Wastes must be disposed of at suitably licenced waste disposal facilities.* - *Contaminated water, and effluents must be prevented from entering the local environment (soil and water), adequately stored in protected and where necessary bunded areas, and disposed of at a suitably licenced disposal facility.* - *No wastes are to be disposed of directly in the local environment.* - *Adequate refuse facilities (with closable lids to protect against scavengers) must be placed at all active construction areas and these must be serviced on a regulator basis.* - *Each active construction site must be checked on a daily basis to ensure that the site is free from litter and unnecessary wastes.*	Medium negative (-15.00)
	Employment creation	Direct Indirect	S1; S2	*Prioritise sub-contracting to local SMEs and un-skilled labour. Utilise existing community structures if available, to act as a communication link between the local community and Eskom for informing the local community of job opportunities and*	Medium Positive (15.00)

				informing Eskom of possible contractors in the local community	
	Erosion	Direct; Indirect	S1; S2	➢ *Keep disturbance of indigenous vegetation to a minimum. Rehabilitate disturbed areas as quickly as possible following completion of construction activities in an area.* ➢ *Powerline towers must be positioned a minimum of 50 m outside the outer boundary of any watercourse. Avoid unnecessary impacts on natural vegetation surrounding infrastructure.* ➢ *Impacts should be contained, as much as possible, within the servitude of the infrastructure. Any topsoil's removed from construction must be conserved, separate from the sub-soils for use in the rehabilitation process.* ➢ *After the topsoil has been stripped, it will be stored separate from subsoil, in the following manner: To prevent the development of anoxic conditions, soil compaction and loss of soil biota, stripped topsoil will be placed/stored on temporary stockpiled not exceeding 1.5 meter in height, and storage will be for the shortest period possible (not longer than 6 months). To prevent compaction and loss of soil structure, no vehicles or machines will be allowed to drive over or being parked on the topsoil stockpiles. To prevent erosion of topsoil, the stockpile will not be placed within the 1:100 year floodline of a water course, and will not be placed within the path of a stormwater channel, and if necessary, will be provided with a silt fence around the perimeter of the foot of the stockpile. To prevent the establishment of seed bank or accumulation of other propagules of alien invasive plants within/on the topsoil stockpile, the growth of weed species on the stockpile will be controlled.* ➢ *Areas with existing erosion and stability issues must be avoided. Wind screening and stormwater control should be undertaken to prevent loss of topsoil from the site.* ➢ *All erosion control mechanisms need to be regularly maintained to ensure efficacy. In the event that new access tracks are required, adequate stormwater control must be implemented to prevent erosion and excessive ponding.*	Low negative (-6.00)

				• *Rehabilitation and if necessary, revegetation (with a suitable local seed mix) of disturbed surfaces should occur as soon as possible after completion of construction activities.* • *Any evidence of erosion, scouring, sedimentation, and/or undercutting must be rectified and rehabilitated immediately.*	
	Fire hazard	Direct; Indirect; cumulative	S1; S2	• *All regulatory requirements and relevant standards must be complied with for necessary fire prevention, detection and response at the substation and along the powerlines. The substation as well as maintenance vehicles must be provided with adequate fire control equipment. In the event that an uncontrolled fire occurs the relevant authorities (e.g. Fire Protection Officers and Fire Protection Associations) as well as the relevant landowners representatives (Incl. neighbouring landowners) must be informed immediately. A suitable fire break must be maintained around the substation. All other regulatory provisions must be complied with (including provisions of the National Veld and Forest Fire Act-Act 101 of 1998). The substation and the powerline servitude must be demarcated as a no-smoking area. Necessary powerline clearances must be maintained to prevent flashovers and faulting.*	Low negative (-6.00)
	Disruption to land-use	Direct; Indirect; cumulative	S1	• *Use existing service roads / access roads (existing transmission powerline).* • *Keep impacts within servitude of the powerline. Clear only necessary footprint of tower structures. Rehabilitate disturbed areas as soon as possible*	Medium negative (-13.33)
	Disruption to land-use	Direct; Indirect; cumulative	S2	• *Use existing service roads / access roads (existing transmission powerline).* • *Keep impacts within servitude of the powerline. Clear only necessary footprint of tower structures. Rehabilitate disturbed areas as soon as possible*	Medium Negative (-18.67)
Operation	*Collisions*	Direct; Cumulative	S1; S2	• *Mark the relevant sections of line with appropriate marking devices. These sections of line, and the exact spans, should be finalised by a "walk down" as part of the Environmental Management Programme (EMP) phase,*	Medium negative (-12.38)

				once power-line routes are finalised and pylon positions are pegged. - *Any bird collisions identified should be reported to ESKOM as well as to the EWT Toll Free line for an investigation and possible additional recommendations and mitigation. It is recommended that ESKOM communicate with the Lichtenburg Breeding Centre regarding the vulture restaurant and determine if this restaurant will be re-opened as this may increase the risk of collisions and electrocutions.*	
	Electrocution	Direct; Cumulative	S1; S2	- *It is highly recommended that bird friendly structures are utilised such as the steel monopole design and that this incorporates the standard bird perch. If this is the case then most raptors and birds of high electrocution risk will perch well above the conductors and out of harm's way. In addition it is critical that all clearances between live and earth components are greater than 1.8 meters. If this is the case then the impact of bird electrocution will be very minimal.* - *Electrocutions in the proposed substation yard should not affect the sensitive bird species as they are unlikely to use the substation yards for perching or roosting. Should this become an issue the impact can be mitigated reactively using a range of insulation devices that exist and are approved by ESKOM. Any bird electrocutions identified should be reported to ESKOM as well as to the EWT Toll Free line for an investigation and possible additional recommendations and mitigation.*	Medium positive (-13.75)
	Establishment and spread of declared weeds and alien invader plants	Direct; Indirect; Cumulative	S1;S2	- *Areas disturbed due to construction activities should be rehabilitated as quickly as possible.* - *Soil stockpiles should not be translocated from areas with alien plants into the site and within the site alien plants on stockpiles must be controlled so as to avoid the development of a soil seed bank of alien plants within the stock-piled soil.* - *Any alien plants must be immediately controlled to avoid establishment of a soil seed bank.* - *An ongoing monitoring programme should be*	Low negative (-1.00)

				implemented to detect and quantify any aliens that may become established and provide information for the management of aliens. This should form part of an alien management programme	
	Disturbance during routine maintenance	Direct Indirect	S1; S2	*No nests may be removed, without first consulting the EWT's Wildlife and Energy Program (WEP). During maintenance, if any of the "Focal Species" identified in this report are observed to be roosting and/or breeding in the vicinity, the EWT is to be contacted for further instruction.*	Low negative (-1.75)
	Potential Impact on transformer oils	Direct; Indirect; cumulative	S1; S2	*The existing pollution control features (oil control dam, bunding, liners, etc) at the substations must be assessed and upgraded to accommodate the new transformer to ensure adequate capacity for the proposed upgrade.*	Low negative (-7.00)
Decommissioning	Site rehabilitation; Waste management and disposal	Direct	S1; S2	*Prior to the decommissioning and detailed decommissioning plan must be prepared. This plan should aim to follow the waste management hierarchy (reuse, recycle, reduce and dispose) in order to prevent unnecessary wastes. All waste which require disposal must be disposed of at a suitably licenced facility. An inventory of infrastructure and wastes together with the ultimate destination (e.g. recycler, waste disposal) should be kept for future records. A rehabilitation plan must be prepared by a suitably qualified specialist prior to commencement. The sites must be rehabilitated to the pre-construction condition or alternatively to align with the surrounding land-uses at the time. The rehabilitated site must be protected from future erosion.*	Low negative (-7.00)