

Section 24G Application Ruigtevallei – Dreunberg 132 kV Powerline.
Appendix E. Impact Assessment

This appendix presents the detailed impact assessment for all route alternatives as they are currently proposed (see Appendix A1).

The following rating criteria were used to determine the significance of identified impacts.

Table 1: Impact Assessment Criteria and Rating Scales

Criteria	Rating Scales	Notes
Nature	Positive	This is an evaluation of the type of effect the construction, operation and management of the proposed development would have on the affected environment. Would it be positive, negative or neutral?
	Negative	
	Neutral	
Extent This refers to the spatial scale at which the impact will occur.	Low	Site-specific, affects only the development footprint
	Medium	Local (limited to the site and its immediate surroundings, including the surrounding towns and settlements within a 10 km radius);
	High	Regional (beyond a 10 km radius) to national
Duration	Low	Short-term: 0-5 years, typically impacts that are quickly reversible within the construction phase of the project
	Medium	Medium-term, 6-10 years, reversible over time
	High	Long-term, 10-60 years, and continue for the operational life span of the development
Intensity This is a relative evaluation within the context of all the activities and the other impacts within the framework of the project. Does the activity destroy the impacted environment, alter its functioning, or render it slightly altered?	Low	Where the impact affects the environment in such a way that natural, cultural and social functions and processes are minimally affected
	Medium	Where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected
	High	Where natural, cultural or social functions and processes are altered to the extent that the impact will temporarily or permanently cease; and valued, important, sensitive or vulnerable systems or communities are substantially affected.
Degree of Reversibility This considers the ability of the impacted environment to return to its pre-impacted state once the cause of the impact has been removed.	Low	Impacted natural, cultural or social functions and processes will return to their pre-impacted state within the short-term.
	Medium	Impacted natural, cultural or social functions and processes will return to their pre-impacted state within the medium to long term.
	High	Impacted natural, cultural or social functions and processes will never return to their pre-impacted state.
Potential for impact on irreplaceable resources This refers to the potential for an environmental resource to be replaced, should it be impacted. A resource could possibly be replaced by natural processes (e.g. by natural colonisation from surrounding areas), through artificial means (e.g. by reseeding disturbed areas or replanting rescued species) or by providing a substitute resource, in certain cases. In natural systems, providing substitute resources is usually not possible, but in social systems substitutes are often possible (e.g. by constructing new social	Low	No irreplaceable resources will be impacted.
	Medium	Resources that will be impacted can be replaced, with effort.
	High	There is no potential for replacing a particular vulnerable resource that will be impacted.

Criteria	Rating Scales	Notes
facilities for those that are lost). Should it not be possible to replace a resource, the resource is essentially irreplaceable e.g. red data species that are restricted to a particular site or habitat of very limited extent.		
<p>Consequence</p> <p>The consequence of the potential impacts is a summation of above criteria, namely the extent, duration, intensity and impact on irreplaceable resources.</p>	<p>Low</p>	<p>A combination of any of the following</p> <ul style="list-style-type: none"> • Intensity, duration, extent and impact on irreplaceable resources are all rated low • Intensity, duration and extent are rated low but impact on irreplaceable resources is rated medium to high • Intensity is low and up to two of the other criteria are rated medium • Intensity is medium and all three other criteria are rated low
	<p>Medium</p>	<ul style="list-style-type: none"> • Intensity is medium and one other criteria is rated high, with the remainder being rated low • Intensity is low and at least two other criteria are rated medium or higher • Intensity is rated medium and at least two of the other criteria are rated medium or higher • Intensity is high and at least two other criteria are medium or higher • Intensity is rated low, but irreplaceability and duration are rated high
	<p>High</p>	<ul style="list-style-type: none"> • Intensity and impact on irreplaceable resources are rated high, with any combination of extent and duration • Intensity is rated high, with all of the other criteria being rated medium or higher
<p>Probability</p> <p>The probability of the impact actually occurring, based on professional experience with environments of a similar nature to the site and/or with similar projects. It is important to distinguish between probability of the impact occurring and probability that the activity causing a potential impact will occur. <u>Probability is defined as the probability of the impact occurring</u>, not as the probability of the activities that may result in the impact. The fact that an activity will occur does not necessarily imply that an impact will occur. For instance, the fact that a road will be built does not necessarily imply that it will impact on a wetland. If the road is properly routed to avoid the wetland, the impact may not occur at all, or the probability of the impact will be low, even though it is certain that the activity will occur.</p>	<p>Low</p>	<p>Improbable. It is highly unlikely or less than 50 % likely that an impact will occur.</p>
	<p>Medium</p>	<p>Distinct possibility. It is between 50 and 70 % certain that the impact will occur.</p>
	<p>High</p>	<p>Most likely. It is more than 75 % certain that the impact will occur or it is definite that the impact will occur.</p>
<p>Significance</p> <p>Impact significance is defined to be a combination of the consequence (as described below) and probability of the impact occurring. The relationship between consequence and probability highlights that the risk (or impact significance) must be evaluated in terms of the <u>seriousness (consequence) of the impact</u>,</p>	<p>Low</p>	<ul style="list-style-type: none"> • Low consequence and low probability • Low consequence and medium probability • Low consequence and high probability
	<p>Low to medium</p>	<ul style="list-style-type: none"> • Low consequence and high probability • Medium consequence and low probability

Criteria	Rating Scales	Notes
<p><u>weighted by the probability of the impact actually occurring.</u> The following analogy provides an illustration of the relationship between consequence and probability. The use of a vehicle may result in an accident (an impact) with multiple fatalities, not only for the driver of the vehicle, but also for passengers and other road users. There are certain mitigation measures (e.g. the use of seatbelts, adhering to speed limits, airbags, anti-lock braking, etc.) that may reduce the consequence or probability or both. The probability of the impact is low enough that millions of vehicle users are prepared to accept the risk of driving a vehicle on a daily basis. Similarly, the consequence of an aircraft crashing is very high, but the risk is low enough that thousands of passengers happily accept this risk to travel by air on a daily basis.</p> <p>In simple terms, if the consequence and probability of an impact is high, then the impact will have a high significance. The significance defines the level to which the impact will influence the proposed development and/or environment. It determines whether mitigation measures need to be identified and implemented and whether the impact is important for decision-making.</p>	<p>Medium</p>	<ul style="list-style-type: none"> • Medium consequence and low probability • Medium consequence and medium probability • Medium consequence and high probability • High consequence and low probability
	<p>Medium to high</p>	<ul style="list-style-type: none"> • High consequence and medium probability
	<p>High</p>	<ul style="list-style-type: none"> • High consequence and high probability

Impact	Route alternative 1										Route alternative 2										Route alternative 3										Route alternative 4											
	Nature	Extent	Duration	Intensity	Reversibility	Irreplaceable	Consequence	Probability	Significance pre-mitigation	Significance post mitigation	Nature	Extent	Duration	Intensity	Reversibility	Irreplaceable	Consequence	Probability	Significance pre-mitigation	Significance post mitigation	Nature	Extent	Duration	Intensity	Reversibility	Irreplaceable	Consequence	Probability	Significance pre-mitigation	Significance post mitigation	Nature	Extent	Duration	Intensity	Reversibility	Irreplaceable	Consequence	Probability	Significance pre-mitigation	Significance post mitigation		
CONSTRUCTION PHASE																																										
Vegetation Clearance (identified by the EAP)																																										
Increased runoff will cause soil and water loss	N	L	L	L	L	L	L	H	M	L	N	L	L	L	L	L	L	H	M	L	N	L	L	L	L	L	L	L	H	M	L	N	L	L	L	L	L	L	L	H	M	L
Removal of alien vegetation	P	L	L	L	L	L	L	H	L	L	P	L	L	L	L	L	L	H	L	L	P	L	L	L	L	L	L	L	H	L	L	P	L	L	L	L	L	L	L	H	L	L
Drilling Holes/ Excavations																																										
Erosion from soil exposure, runoff and incorrect storage of stockpiles	N	L	M	L	L	L	L	M	L	L	N	L	M	L	L	L	L	M	L	L	N	L	M	L	L	L	L	M	L	L	L	N	L	M	L	L	L	L	M	L	L	L
Excessive noise pollution	N	L	L	L	L	L	M	L	L	L	N	L	L	L	L	L	L	M	L	L	N	L	L	L	L	L	L	M	L	L	L	N	L	L	L	L	L	L	M	L	L	L
Avifauna Impacts (identified by the specialist)																																										
Destruction of bird habitat	N	L	H	L	M	L	L	H	M	L	N	L	H	L	M	L	L	H	M	L	N	L	H	L	M	L	L	H	M	L	N	L	H	L	M	L	M	H	M	L	L	
Disturbance of birds	N	L	L	M	L	M	M	H	H	H	N	L	L	M	L	M	M	L	H	L	N	L	L	M	L	M	M	H	H	H	N	L	L	M	L	M	M	H	H	H		
Use of Construction Vehicles																																										
New vehicle tracks may cause soil erosion	N	L	L	L	L	L	M	L	L	L	N	L	L	L	L	L	L	M	L	L	N	L	L	L	L	L	L	M	L	L	L	N	L	L	L	L	L	L	M	L	L	L
Disruption to live stock and game farming during construction	N	L	L	L	L	L	M	L	L	L	N	L	L	L	L	L	L	M	L	L	N	L	L	L	L	L	L	M	L	L	L	N	L	L	L	L	L	L	M	L	L	L
Damage to roads by construction vehicles	N	L	L	L	L	L	M	L	L	L	N	L	L	L	L	L	L	M	L	L	N	L	L	L	L	L	L	M	L	L	L	N	L	L	L	L	L	L	M	L	L	L

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Biodiversity Impacts (identified by the specialist)																																									
Disruption to strategic/ regional biodiversity and spatial planning initiatives	N	H	H	L	M	L	L	H	L	L	N	H	H	L	M	L	L	H	H	L	N	N	H	H	L	M	L	L	L	L	L	N	H	H	L	M	L	L	L	H	L
Vegetation clearance and loss, loss of plant species and habitat fragmentation	N	L	H	M	L	L	M	M	M	L	N	L	H	M	L	L	M	M	M	L	N	N	L	H	M	L	L	M	M	M	L	N	L	H	M	L	L	M	L	M	L
Increase alien plant invasion	N	L	M	M	M	M	M	M	L	N	L	M	M	M	M	M	M	M	L	N	N	L	M	M	M	M	M	M	M	L	N	L	M	M	M	M	M	M	M	L	
Disturbance to resident fauna	N	L	L	L	L	L	H	L	L	N	L	L	L	L	L	L	H	L	L	N	N	L	L	L	L	L	H	L	L	L	N	L	L	L	L	L	L	H	L	L	
Disturbance to aquatic biodiversity	N	M	L	L	L	L	L	L	L	N	M	L	L	L	L	L	L	L	L	N	N	M	L	L	L	L	L	L	L	L	N	M	L	L	L	L	L	L	L	L	
Paleontological Impacts (identified by the specialist)																																									
Damage/ destruction of fossils in bedrocks	N	L	H	L	H	M	M	H	M	M	N	L	H	L	H	L	M	H	M	M	N	N	L	H	L	H	L	M	H	M	M	N	L	H	L	H	L	M	H	M	M
Damage/ destruction of fossils in superficial sediments	N	L	H	L	H	L	M	H	M	M	N	L	H	L	H	L	M	H	M	M	N	N	L	H	L	H	L	M	H	M	M	N	L	H	L	H	L	M	H	M	M
CUMULATIVE IMPACTS																																									
Disturbance of birds and fauna	N	L	H	L	M	L	L	H	M	L	N	L	H	L	M	L	L	H	M	L	N	N	L	H	L	M	L	L	H	M	L	N	L	H	L	M	L	L	H	M	L
Destruction of habitat and habitat fragmentation	N	L	H	L	M	L	L	H	M	L	N	L	H	L	M	L	L	H	M	L	N	N	L	H	L	M	L	L	H	M	L	N	L	H	L	M	L	L	H	M	L

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OPERATIONAL PHASE																																								
Maintenance (identified by the EAP)																																								
Irregular maintenance may lead to fires, and or malfunction of systems	N	M	M	M	M	L	M	L	M	L	N	M	M	M	M	L	M	L	M	L	N	M	M	M	M	L	M	L	M	L	N	M	M	M	M	L	M	L	M	L
Damage to vegetation, livestock and wildlife	N	L	H	L	L	L	L	L	L	N	L	H	L	L	L	L	L	L	L	N	L	H	L	L	L	L	L	L	L	N	L	H	L	L	L	L	L	L	L	L
Socio-Economic Impacts (identified by the EAP)																																								
Reliable electricity supply. Capacity for future development leading to potential job creation	P	M	H	M	H	L	M	M	M	M	P	M	H	M	H	L	M	M	M	M	P	M	H	M	H	L	M	M	M	M	P	M	H	M	H	L	M	M	M	M
Avifauna Impacts																																								
Collision of birds with earth wire	N	H	H	M	M	M	H	H	H	M	N	H	H	M	M	M	H	H	H	M	N	H	H	M	M	M	H	H	H	M	N	H	H	M	M	M	H	H	H	M
Electrocution of birds on pylons	N	H	H	M	M	M	H	H	H	L	N	H	H	M	M	M	H	H	H	L	N	H	H	M	M	M	H	H	H	L	N	H	H	M	M	M	H	H	H	L
Destruction of bird habitats	N	L	H	L	M	L	L	H	M	L	N	L	H	L	M	L	L	H	M	L	N	L	H	L	M	L	L	H	M	L	N	L	H	L	M	L	M	H	M	L
Disturbance of birds	N	L	L	M	L	M	M	H	H	L	N	L	L	M	L	M	M	L	H	L	N	L	L	M	L	M	M	H	H	L	N	L	L	M	L	M	M	L	H	L

Impact	Route alternative 1										Route alternative 2										Route alternative 3										Route alternative 4									
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Biodiversity Impacts																																								
Increased alien plant invasion	N	M	M	H	M	M	H	M	H	L	N	M	M	H	M	M	H	M	H	L	N	M	M	H	M	M	H	M	H	L	N	M	M	H	M	M	H	M	H	L
Disturbance to resident fauna	N	L	L	L	L	L	M	L	L	N	L	L	L	L	L	L	M	L	L	N	L	L	L	L	L	L	M	L	L	N	L	L	L	L	L	L	M	L	L	
Heritage Impacts																																								
Landscapes	N	M	H	H	M	M	M	M	L	M	N	M	H	H	M	M	M	M	L	N	M	H	H	M	M	M	M	L	N	M	H	H	M	M	M	M	L			
CUMULATIVE IMPACTS																																								
Disturbance of birds and fauna	N	L	H	L	M	L	L	H	M	L	N	L	H	L	M	L	L	H	M	L	N	L	H	L	M	L	L	H	M	L	N	L	H	L	M	L	L	H	M	L
Collision of birds	N	H	H	M	M	H	H	H	M	M	N	H	H	M	M	M	H	H	M	M	N	H	H	M	M	M	H	H	M	M	N	H	H	M	M	M	H	H	M	M
Electrocution of birds	N	H	H	M	M	M	H	H	L	N	H	H	M	M	M	H	H	L	N	H	H	M	M	M	H	H	L	N	H	H	M	M	M	H	H	L				