

**SITE SENSITIVITY VERIFICATION REPORT FOR THE PROPOSED CAROLUS EGI ON PORTION 1 OF THE FARM RIET FOUNTAIN NO. 6, REMAINING EXTENT OF THE FARM WAG TEN BITTJE NO. 5, PORTION 3 OF THE FARM CAROLUS POORT NO. 3, REMAINING EXTENT OF THE FARM CAROLUS POORT NO. 3 AND FARM WAG 'N BIETJIE ANNEX C 137, EMTHANJENI LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE
(DFFE REFERENCE: 14/12/16/3/3/1/2649)**

Carolus Solar PV1 (Pty) Ltd is proposing the construction and operation of grid connection infrastructure on Portion 1 of the Farm Riet Fountain No. 6, remaining extent of the Farm Wagten Bittje No. 5, Portion 3 of the Farm Carolus Poort No. 3, Portion 0 of the Farm Carolus Poort No. 3, Farm Wag 'n Bietjie Annex C 137 and Portion 0 of the Farm Vetlaagte No.4 located approximately 10km east of De Aar, within the Emthanjeni Local Municipality of the Pixley Ka Seme District Municipality in the Northern Cape Province (Refer to Figure 1). The proposed grid connection will be known as Carolus EGI. The purpose of the Grid Connection Infrastructure (EGI) is to connect the Carolus PV Facility to the national grid.

The grid connection infrastructure will consist of the following:

- » Onsite 132kV Eskom switching station - 150m x 150m and 30m height, metering, relay & control buildings, laydown area, ablutions with conservancy tanks and water storage tanks, and access roads which is handed back to Eskom (Separate EA).
- » 132kV Overhead Power Line (OHPL) – 30m height from the switching station to the Main Transmission Substation (MTS) located on Vetlaagte (RE/4) and Wag en Bittje (RE/5) farms which will be handed back to Eskom (within 300m wide corridor and a 31m wide servitude).
- » Access roads to substation sites (up to 8 m wide) and service tracks (up to 6 m wide) where no existing roads are available.

One corridor of 200m wide and between 4.3km (to Wagten 'n Bietjie MTS) and 7.8km (to Vetlaagte MTS) long are being considered connecting to either the new Vetlaagte MTS located on the Farm Vetlaagte (RE/4) or Wag-n-Bietjie MTS, located on the Farm Wag en Bittje (RE/5) ¹. The entire extent of the site falls within the Central Corridor of the Strategic Transmission Corridors².

The project is planned as part of a larger cluster of proposed renewable energy projects, which includes four PV facilities (to be known as Fountain Solar PV1, Riet Fountain Solar PV1, Carolus Solar PV1 and Wagten PV1), and associated grid connection infrastructure. These projects are proposed by separate Special Purpose Vehicles (SPVs) and are assessed through separate Environmental Impact Assessment (EIA) processes. Potential cumulative impacts of the cluster will be assessed in each separate process being undertaken.

¹ The Vetlaagte MTS and Wag-n-Bietjie MTS are being assessed under a separate BAR process.

² The Strategic Transmission Corridors are identified by the Department of Forestry, Fisheries and the Environment (DFFE) as geographical areas of strategic importance for the development of the supporting large scale electricity transmission and distribution infrastructure in terms of Strategic Integrated Project 10: Electricity Transmission and distribution. This is as per GNR113 of February 2018.

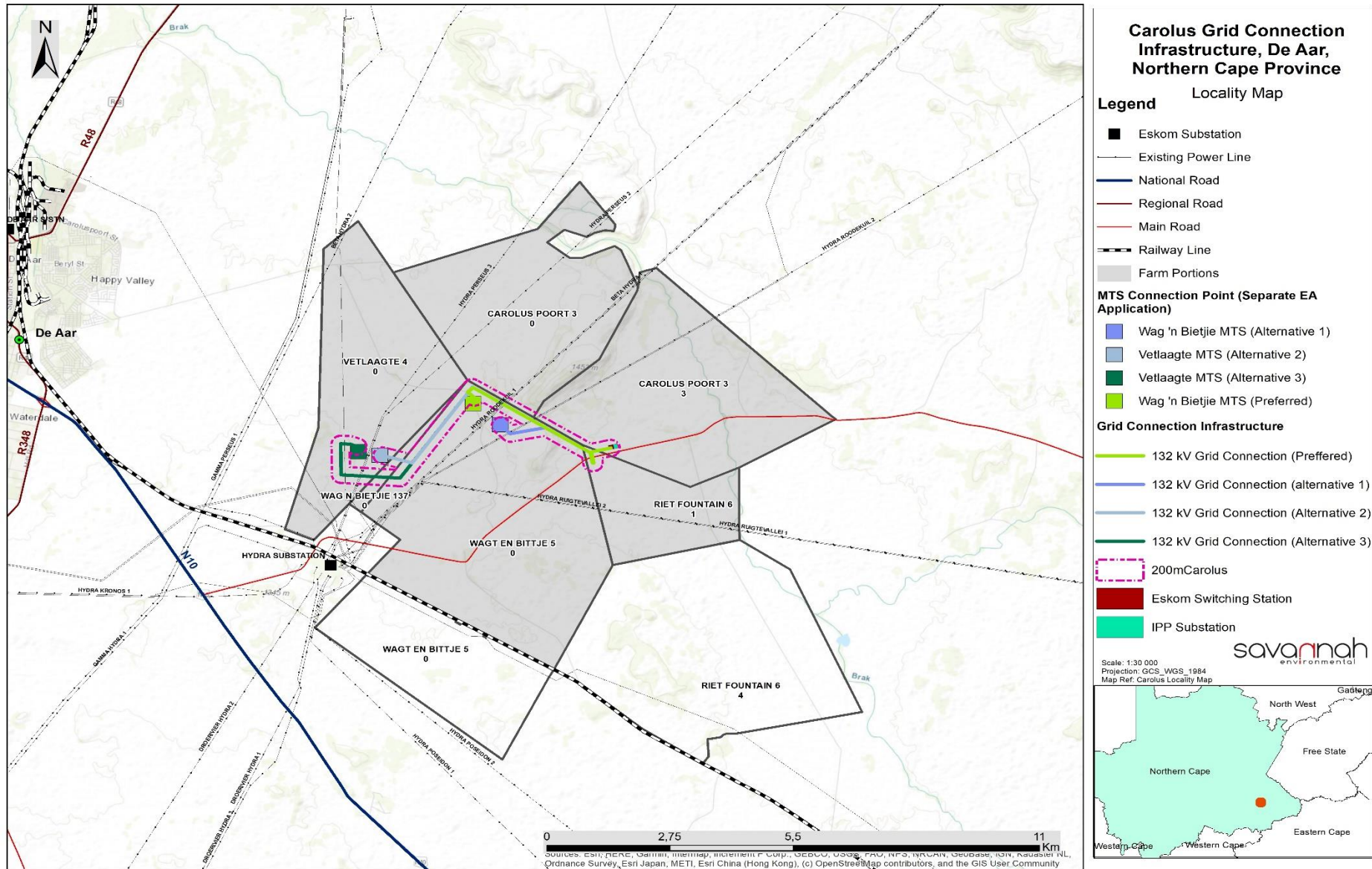


Figure 1: Locality map illustrating the location of the Carolus EGI

SENSITIVITY VERIFICATION METHODOLOGY:

The site sensitivity verification report was compiled by the EAP and is based on specialist desktop information and field work undertaken as part of the BA process. This report forms part of the Basic Assessment (BA) process being undertaken for the proposed Carolus EGI on Portion 1 of the Farm Riet Fountain No. 6, remaining extent of the Farm Wagt en Bittje No. 5, Portion 3 of the Farm Carolus Poort No. 3, Portion 0 of the Farm Carolus Poort No. 3, Farm Wag 'n Bietjie Annex C 137 and Portion 0 of the Farm Vetlaagte No.4, Emthanjeni Local Municipality, Northern Cape Province, and is informed by the specialist studies undertaken for the project.

SITE SENSITIVITY VERIFICATION:

The table below and reference to specialist assessments serve to:

- » Verify land use and sensitivities identified in the screening report; and
- » Confirm / contest the need for the various specialist inputs called for in terms of the screening tool report.

Environmental Theme/Specialist Assessment	Sensitivity Rating as per the Screening Tool (relating to the need for the study)	Verification of Site Sensitivity												
Agriculture	Medium	<p>Various soil forms were identified within the project area with the most sensitive soils being classified as the Hutton and Oakleaf, with other associated soils also occurring. The land capability sensitivities (DAFF, 2017) indicate land capabilities with "Very Low to Moderate" sensitivities. It is the specialist's opinion that based on the DAFF (2017) land capability sensitivity of the areas the proposed project will have limited impact on the agricultural production ability of the land. Additionally, the proposed activities for the project will not result in the segregation of any high production agricultural land. The available areas with high crop field boundary sensitivity (DFFE Screening Tool, 2022) are located outside the proposed project area as well. Therefore, the proposed project may be favourably considered.</p> <p>A Soils and Agricultural Compliance Statement is included in this BA Report as Appendix G of the BA Report.</p>												
Animal Species	Medium	<p>Based on the specialist assessment, all habitats within the project area were assigned a sensitivity category, i.e., a Site Ecological Importance (SEI) category. The PAOI was categorised as possessing habitats possessing areas of 'Very Low', 'High' and 'Very High' SEI. (Table 1). This indicates that the findings of this assessment are congruent with the Screening Tool with respect to the Combined Terrestrial and Animal Species Theme sensitivity.</p> <p>Table 1: Summary of the proposed Carolus PV and EGI Site Ecological Importance</p> <table border="1" data-bbox="592 1899 1463 2033"> <thead> <tr> <th data-bbox="600 1910 759 1989">Conservation Importance</th> <th data-bbox="767 1910 919 1989">Functional Integrity</th> <th data-bbox="927 1910 1078 1989">Biodiversity Importance</th> <th data-bbox="1086 1910 1238 1989">Receptor Resilience</th> <th data-bbox="1246 1910 1398 1989">Site Ecological Importance</th> <th data-bbox="1406 1910 1455 1989">Area (ha)</th> </tr> </thead> <tbody> <tr> <td data-bbox="600 2000 759 2022">Medium</td> <td data-bbox="767 2000 919 2022">High</td> <td data-bbox="927 2000 1078 2022">High</td> <td data-bbox="1086 2000 1238 2022">Very Low</td> <td data-bbox="1246 2000 1398 2022">Very High</td> <td data-bbox="1406 2000 1455 2022">82</td> </tr> </tbody> </table>	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance	Area (ha)	Medium	High	High	Very Low	Very High	82
Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance	Area (ha)									
Medium	High	High	Very Low	Very High	82									

Environmental Theme/Specialist Assessment	Sensitivity Rating as per the Screening Tool (relating to the need for the study)	Verification of Site Sensitivity					
		<p>Confirmed or highly likely occurrence of populations of NT species</p>	<p>Large (> 20 ha but < 100 ha) intact area for any conservation status of ecosystem type.</p> <p>Good habitat connectivity with potentially functional ecological corridors and a regularly used road network between intact habitat patches.</p>		<p>Habitat that is unable to recover from major impacts, or species that are unlikely to remain at a site even when a disturbance or impact is occurring, or species that are unlikely to return to a site once the disturbance or impact has been removed.</p>		
		<p>Medium</p> <p>Confirmed or highly likely occurrence of populations of NT species</p>	<p>Very High</p> <p>Very large (> 100 ha) intact area for any conservation status of ecosystem type.</p> <p>High habitat connectivity serving as functional ecological corridors, limited road network between intact habitat patches.</p>	High	<p>Medium</p> <p>Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a moderate likelihood of remaining at a site even when a disturbance or impact is occurring, or species that</p>	High	1 068

Environmental Theme/Specialist Assessment	Sensitivity Rating as per the Screening Tool (relating to the need for the study)	Verification of Site Sensitivity					
					have a moderate likelihood of returning to a site once the disturbance or impact has been removed.		
		<p>Very Low</p> <p>No confirmed and highly unlikely populations of SCC.</p> <p>No confirmed and highly unlikely populations of range-restricted species. No natural habitat remaining.</p>	<p>Low</p> <p>Almost no habitat connectivity but migrations still possible across some modified or degraded natural habitat and a very busy used road network surrounds the area.</p>	<p>Very Low</p>	<p>Very High</p> <p>Habitat that can recover rapidly (~ less than 5 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a very high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a very high likelihood of returning to a site once the disturbance or impact has been removed.</p>	<p>Very Low</p>	<p>8</p>
<p>A Biodiversity Impact Assessment has been undertaken for the Carolus EGI and is included as Appendix D of the BA Report.</p>							

Environmental Theme/Specialist Assessment	Sensitivity Rating as per the Screening Tool (relating to the need for the study)	Verification of Site Sensitivity												
Archaeological and Cultural Heritage	Low	<p>The overall archaeological sensitivity of the development area with regard to the preservation of Early, Middle and Later Stone Age archaeology as well as Khoe and San heritage, early colonial settlement is regarded as very high. Despite this, the field assessment conducted for this project has demonstrated that the specific area proposed for development has low sensitivity for impacts to significant archaeological heritage.</p> <p>The results of this assessment align with the findings of other specialists such as Morris (2011) who notes that ephemeral MSA and LSA scatters are the dominant archaeological signature of the area and the majority of these are therefore not archaeologically significant.</p> <p>The findings of this assessment are congruent with the Screening Tool. A Heritage Impact Assessment has been undertaken for the Carolus EGI and is included as Appendix H of the BA Report.</p>												
Palaeontology	Very High	<ul style="list-style-type: none"> » The Palaeontological Sensitivity of the Tierberg Formation is classified as High Risk by SAHRIS. » The Palaeontological Sensitivity of the Adelaide Subgroup is classified as Very High Risk by SAHRIS. » The Palaeontological Sensitivity of the Jurassic Dolerite is classified as Insignificant/Zero by SAHRIS. » The Palaeontological Sensitivity of the Quaternary deposits is classified as Moderate by SAHRIS. <p>Based on experience, other reports and the lack of any significant previously recorded fossils from the area, it is unlikely that any fossils would be preserved in the Tierberg Formation or Adelaide Subgroup.</p> <p>A Heritage Impact Assessment has been undertaken for the Carolus EGI and is included as Appendix H of the BA Report.</p>												
Terrestrial Biodiversity	Very High	<p>Based on the specialist assessment, all habitats within the project area were assigned a sensitivity category, i.e., a Site Ecological Importance (SEI) category. The PAOI was categorised as possessing habitats possessing areas of 'Very Low', 'High' and 'Very High' SEI. (Table 1). This indicates that the findings of this assessment are congruent with the Screening Tool with respect to the Combined Terrestrial and Animal Species Theme sensitivity.</p> <p>Table 1: Summary of the proposed Carolus PV and EGI Site Ecological Importance</p> <table border="1" data-bbox="592 1727 1465 2033"> <thead> <tr> <th data-bbox="600 1738 759 1816">Conservation Importance</th> <th data-bbox="767 1738 919 1816">Functional Integrity</th> <th data-bbox="927 1738 1078 1816">Biodiversity Importance</th> <th data-bbox="1086 1738 1238 1816">Receptor Resilience</th> <th data-bbox="1246 1738 1398 1816">Site Ecological Importance</th> <th data-bbox="1406 1738 1457 1816">Area (ha)</th> </tr> </thead> <tbody> <tr> <td data-bbox="600 1827 759 2022">Medium Confirmed or highly likely occurrence of</td> <td data-bbox="767 1827 919 2022">High Large (> 20 ha but < 100 ha) intact area for any conservation</td> <td data-bbox="927 1827 1078 2022" style="background-color: red; color: white; text-align: center;">High</td> <td data-bbox="1086 1827 1238 2022">Very Low Habitat that is unable to recover from major impacts, or</td> <td data-bbox="1246 1827 1398 2022" style="background-color: black; color: white; text-align: center;">Very High</td> <td data-bbox="1406 1827 1457 2022" style="text-align: center;">82</td> </tr> </tbody> </table>	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance	Area (ha)	Medium Confirmed or highly likely occurrence of	High Large (> 20 ha but < 100 ha) intact area for any conservation	High	Very Low Habitat that is unable to recover from major impacts, or	Very High	82
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Environmental Theme/Specialist Assessment	Sensitivity Rating as per the Screening Tool (relating to the need for the study)	Verification of Site Sensitivity					
		populations of NT species	<p>status of ecosystem type.</p> <p>Good habitat connectivity with potentially functional ecological corridors and a regularly used road network between intact habitat patches.</p>		species that are unlikely to remain at a site even when a disturbance or impact is occurring, or species that are unlikely to return to a site once the disturbance or impact has been removed.		
		<p>Medium</p> <p>Confirmed or highly likely occurrence of populations of NT species</p>	<p>Very High</p> <p>Very large (> 100 ha) intact area for any conservation status of ecosystem type.</p> <p>High habitat connectivity serving as functional ecological corridors, limited road network between intact habitat patches.</p>	High	<p>Medium</p> <p>Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a moderate likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a moderate likelihood of returning to a site once the</p>	High	1 068

Environmental Theme/Specialist Assessment	Sensitivity Rating as per the Screening Tool (relating to the need for the study)	Verification of Site Sensitivity				
					disturbance or impact has been removed.	
		<p>Very Low</p> <p>No confirmed and highly unlikely populations of SCC.</p> <p>No confirmed and highly unlikely populations of range-restricted species.</p> <p>No natural habitat remaining.</p>	<p>Low</p> <p>Almost no habitat connectivity but migrations still possible across some modified or degraded natural habitat and a very busy used road network surrounds the area.</p>	<p>Very Low</p>	<p>Very High</p> <p>Habitat that can recover rapidly (~ less than 5 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a very high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a very high likelihood of returning to a site once the disturbance or impact has been removed.</p>	<p>Very Low</p> <p>8</p>
<p>A Biodiversity Impact Assessment has been undertaken for the Carolus EGI and is included as Appendix D of the BA Report.</p>						
Aquatic Biodiversity	Very High	<p>Some level of channel habitat modification has taken place through land use activities however the ecosystems and adjacent terrestrial habitat is considered open and largely unmodified. Baseline impacts within the drainage channels and catchment include instream weirs, farm fences, livestock influence and vehicle tracks which have altered the hydro-dynamics to some degree. Despite their current level of modification and ephemeral nature, the watercourses are sensitive to further modification as</p>				

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		<p>these systems do provide drinking opportunities (in times of rainfall) and habitat for foraging, nesting and refugia for terrestrial biota and avifauna. Therefore, the watercourses in the project area are regarded as sensitive environments in relation to changes in habitat integrity, flow and water quality requiring avoidance from the project related disturbance activities and maintenance of baseline conditions.</p> <p>Based on the survey findings, the specialist agrees with the "Very High" aquatic theme sensitivity as per the National Web based Environmental Screening Tool.</p> <p>An Aquatic Impact Assessment has been undertaken for the Carolus EGI and is included as Appendix E of the BA Report.</p>
Avian	Medium	<p>The entire Project Site is a high sensitivity zone due to the potential presence of several SCC including African Rock Pipit, Black Stork, Blue Crane, Cape Vulture, Greater Flamingo, Karoo Korhaan, Lanner Falcon, Ludwig's Bustard, Martial Eagle, Secretary bird, Tawny Eagle, and Verreaux's Eagle which could utilise the whole Project Site for foraging.</p> <p>At a site-specific level, environmentally sensitive features present within the proposed study area include the existing Jackal Buzzard nests. These areas are classified as areas of HIGH sensitivity. Construction in the areas containing Jackal Buzzard nests will need to be carefully managed to ensure minimal disturbance to the breeding birds and/or their progeny. Site specific recommendations for the management of the disturbance and collision impacts associated with these HIGH sensitivity areas has been provided by the specialist following the pre-construction avifaunal walk-through (inspection).</p> <p>An Avifauna Impact Assessment has been undertaken for the electrical grid connection and included as Appendix F of the BA Report. The assessment has been undertaken in accordance with the requirements of the BirdLife SA Best Practice Guidelines for Solar Developments.</p>
Civil Aviation	High	<p>A Compliance Statement is included in this BA report as Appendix R. The sensitivity has been verified to be low due to the long distance in between the proposed PV facility EGI and the airfield. Further assessment of the potential impacts is not required.</p> <p>The Civil Aviation Authority (CAA) and Air Traffic Navigation Services (ATNS) have been consulted throughout the BA process to obtain input and details of any requirements for further studies. No objections to the project have been received.</p>
Defence	Low	The project site is not located within close proximity of any military base.
Plant Species	Low	Based on the specialist assessment, all habitats within the project area were assigned a sensitivity category, i.e., a Site Ecological Importance (SEI) category. The PAOI was categorised as possessing habitats possessing areas of 'Very Low', 'High' and 'Very High' SEI. (Table 1). This indicates that

Environmental Theme/Specialist Assessment	Sensitivity Rating as per the Screening Tool (relating to the need for the study)	Verification of Site Sensitivity
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the findings of this assessment are congruent with the Screening Tool with respect to the Combined Terrestrial and Animal Species Theme sensitivity.

Table 1: Summary of the proposed Carolus PV and EGI Site Ecological Importance

Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance	Area (ha)
<p>Medium</p> <p>Confirmed or highly likely occurrence of populations of NT species</p>	<p>High</p> <p>Large (> 20 ha but < 100 ha) intact area for any conservation status of ecosystem type.</p> <p>Good habitat connectivity with potentially functional ecological corridors and a regularly used road network between intact habitat patches.</p>	<p>High</p>	<p>Very Low</p> <p>Habitat that is unable to recover from major impacts, or species that are unlikely to remain at a site even when a disturbance or impact is occurring, or species that are unlikely to return to a site once the disturbance or impact has been removed.</p>	<p>Very High</p>	<p>82</p>
<p>Medium</p> <p>Confirmed or highly likely occurrence of populations of NT species</p>	<p>Very High</p> <p>Very large (> 100 ha) intact area for any conservation status of ecosystem type.</p> <p>High habitat connectivity serving as functional ecological corridors, limited road</p>	<p>High</p>	<p>Medium</p> <p>Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a</p>	<p>High</p>	<p>1 068</p>

Environmental Theme/Specialist Assessment	Sensitivity Rating as per the Screening Tool (relating to the need for the study)	Verification of Site Sensitivity					
			network between intact habitat patches.		moderate likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a moderate likelihood of returning to a site once the disturbance or impact has been removed.		
		<p>Very Low</p> <p>No confirmed and highly unlikely populations of SCC.</p> <p>No confirmed and highly unlikely populations of range-restricted species. No natural habitat remaining.</p>	<p>Low</p> <p>Almost no habitat connectivity but migrations still possible across some modified or degraded natural habitat and a very busy used road network surrounds the area.</p>	<p>Very Low</p>	<p>Very High</p> <p>Habitat that can recover rapidly (~ less than 5 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a very high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a very high likelihood of returning to a site once</p>	<p>Very Low</p>	<p>8</p>

Environmental Theme/Specialist Assessment	Sensitivity Rating as per the Screening Tool (relating to the need for the study)	Verification of Site Sensitivity					
					the disturbance or impact has been removed.		
		A Biodiversity Impact Assessment has been undertaken for the Carolus EGI and is included as Appendix D of the BA Report.					
Socio-Economic Assessment	The screening report does not indicate a rating for this theme.	A Socio-Economic Impact Assessment has been undertaken and is included in the BA Report as Appendix J .					

Based on the outcomes of the Scoping Phase evaluation of the project and the outcomes of the Site Sensitivity Verification, the following studies were identified as being required:

- » Biodiversity Impact Assessment
- » Aquatic Impact Assessment
- » Avifauna Impact Assessment
- » Soils and Agricultural Impact Assessment
- » Heritage Impact Assessment
- » Visual Impact Assessment
- » Social Impact Assessment

The specialist studies undertaken for this project are required to comply with either the above Protocols or, alternatively, with the requirements of Appendix 6 of the NEMA EIA Regulations of 2014 (as amended 2017 & 2021).