



**TERRESTRIAL BIODIVERSITY COMPLIANCE
STATEMENT FOR THE PROPOSED KELVIN
POWER STATION COMBINED CYCLE GAS
TURBINE POWER PLANT PROJECT**

**City of Ekurhuleni Metropolitan Municipality, West
Rand District Municipality, Gauteng Province,
South Africa**

5/20/2024

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Report Name	TERRESTRIAL BIODIVERSITY COMPLIANCE STATEMENT FOR THE PROPOSED KELVIN POWER STATION COMBINED CYCLE GAS TURBINE POWER PLANT PROJECT	
Specialist Theme	Terrestrial Biodiversity Theme	
Project Reference	Kelvin Power Station	
Report Version	Draft 1 / 2024/05/09	
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Declaration	<p>The Biodiversity Company and its associates operate as independent consultants under the auspice of the South African Council for Natural Scientific Professions. We declare that we have no affiliation with or vested financial interests in the proponent, other than for work performed under the Environmental Impact Assessment Regulations (Amended). We have no conflicting interests in the undertaking of this activity and have no interests in secondary developments resulting from the authorisation of this project. We have no vested interest in the project, other than to provide a professional service within the constraints of the project (timing, time and budget) based on the principals of science.</p>	

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1 Introduction

1.1 Background

The Biodiversity Company was appointed to undertake a terrestrial biodiversity baseline assessment for the proposed Kelvin Power Combined Cycle Gas Turbine (CCGT) Project in Kempton Park, Gauteng Province. The proposed development area will be referred to as the PAOI of Influence (PAOI) for reporting purposes. A map presenting the regional context of the PAOI can be found in Figure 1-1 and a map presenting the PAOI details is illustrated in Figure 1-2.

To determine the baseline ecological state of the area and to present a detailed description of the receiving environment, both a basic desktop assessment, as well as a field survey on the 7th of May 2024, were conducted. The assessment was conducted in Autumn, during the dry season. Furthermore, the desktop assessment and field survey involved the detection, identification and description of any locally relevant sensitive receptors and habitats. The manner in which these sensitive features may be affected by the proposed development was also investigated.

This assessment was conducted in accordance with the amendments to the Environmental Impact Assessment Regulations, 2014 (No. 326, 7 April 2017) of the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998). The approach has taken cognisance of the recently published Government Notice 320 in terms of NEMA dated 20 March 2020 as well as the Government Notice 1150 in terms of NEMA dated 30 October 2020: "Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation". The National Web based Environmental Screening Tool has characterised the terrestrial biodiversity theme for the area as 'Very High' sensitivity (National Environmental Screening Tool, 2023).

The purpose of conducting the specialist study is to provide relevant input into the Environmental Authorisation application process, with a focus on the proposed activities and their impacts associated with the project. This report, after taking into consideration the findings and recommendations provided by the specialist herein, should inform and guide the Registered Environmental Assessment Practitioner (EAP) and regulatory authorities, enabling informed decision making as to the ecological viability of the proposed project.

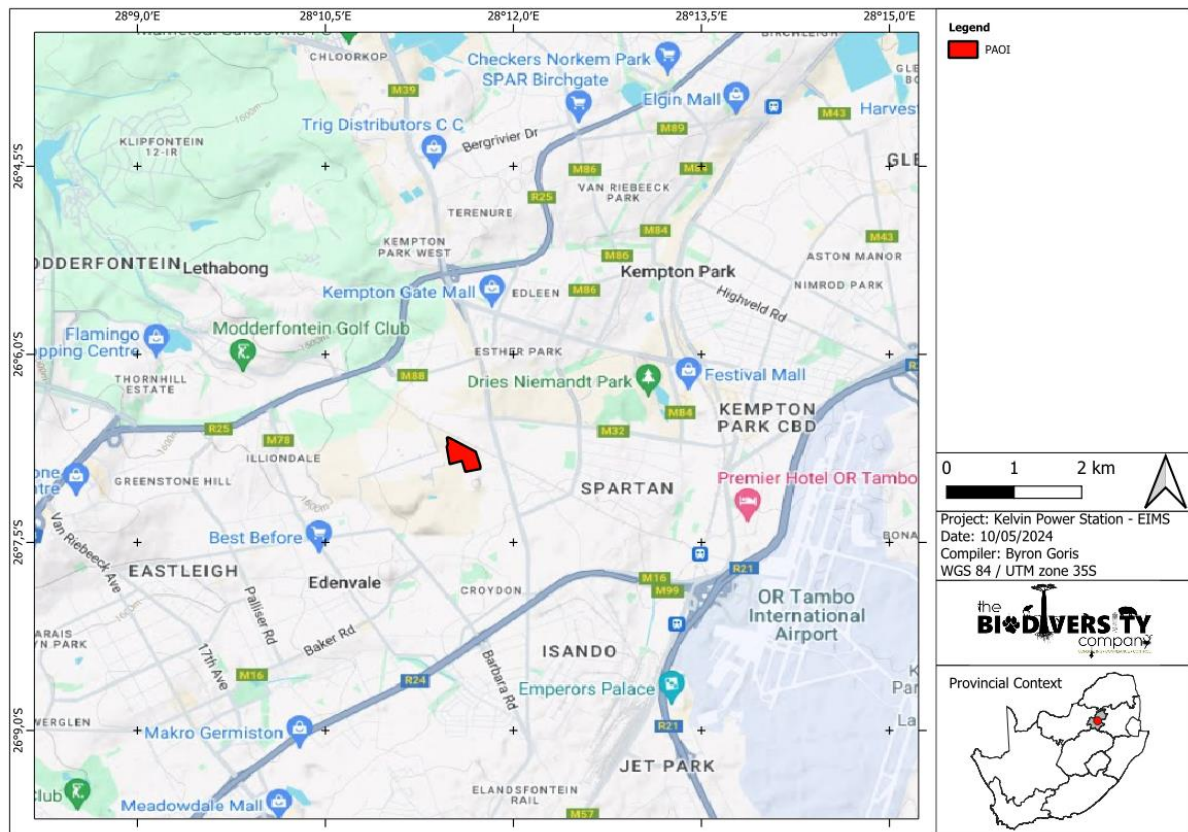


Figure 1-1 Map illustrating the regional context of the PAOI

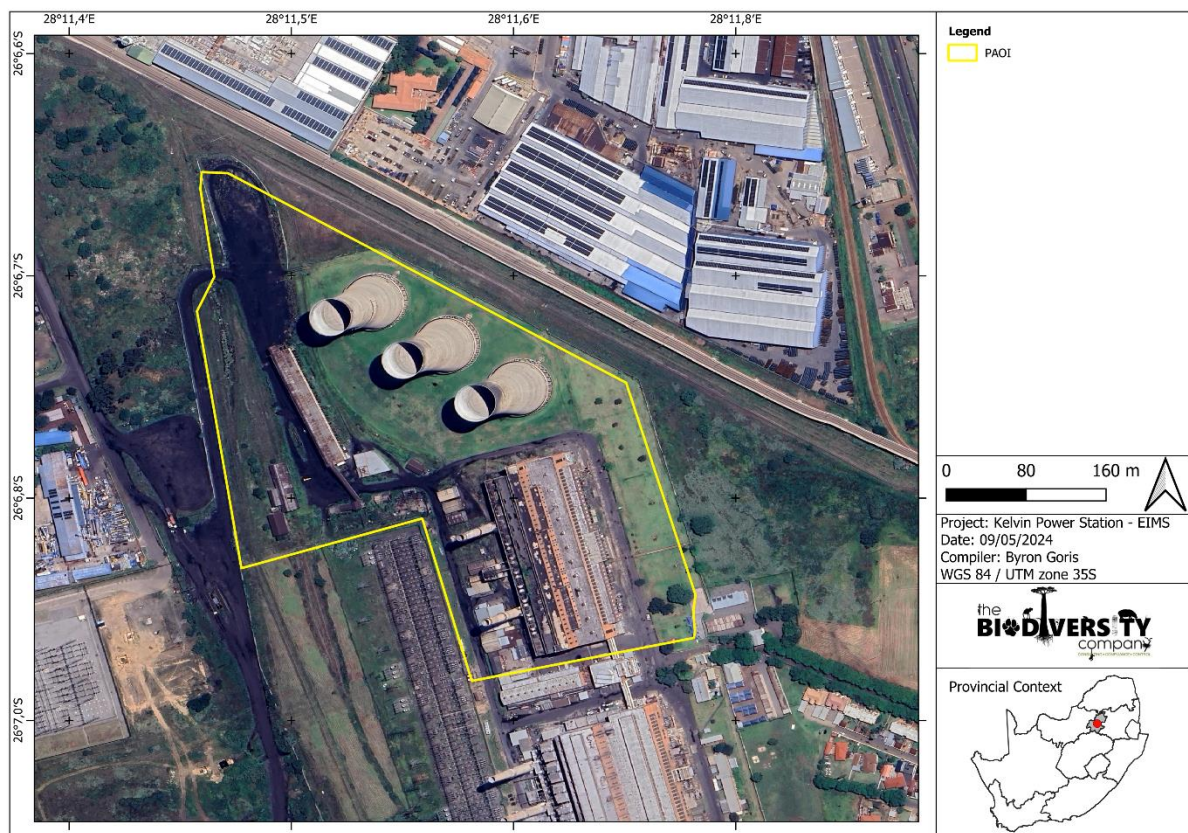


Figure 1-2 Map illustrating the PAOI

1.1 Project Description

The following project description is as per information provided by EIMS (2024):

The applicant, Kelvin Power (Pty) Ltd, is proposing the development of a Combined Cycle Gas Turbine (CCGT) Power Plant at the Kelvin Power Station located in Kempton Park, within the City of Ekurhuleni Metropolitan Municipality. Kelvin intends to construct a CCGT with generation capacity of up to 600 MW at the previous Kelvin A-station site area. Kelvin aims to supply the electricity generated to Eskom through a Power Purchase Agreement (PPA) (see **Error! Reference source not found.**).

THE CCGT Power Plant will comprise of one gas turbine, a heat recovery boiler, and a steam turbine (with associated High Voltage switchgear and control gear). The gas turbine will receive natural gas from the Sasol gas pipeline network into the gas turbine where the combustion will take place producing mechanical energy that is converted by the generator to electric power and a hot exhaust gas. The hot exhaust gas will be captured by the heat recovery boiler where treated water will be heated producing high pressure steam with high potential energy. The steam will be moved to the steam turbine where the potential energy contained in the steam will be converted to mechanical energy powering a generator that will produce electricity. The steam is then discharged into condenser where it is then collected and returned to the boiler to produce more steam (recycling).

The proposed CCGT Power Plant will comprise of one gas turbine, heat recovery boiler and steam turbine. The main structures comprising the plant include a control room, gas turbine unit, mechanical drift cooling tower, steam turbine building, heat recovery steam generator (HRSG) and HRSG stack, water treatment plant for the cooling tower water, raw water and demineralised water tanks, fuel gas, compressor building, a High Voltage switchyard, auxiliary buildings, and administration buildings. Other infrastructure includes additional water and treatment sewage water reticulation pipelines, as well as electricity transmission lines to the City Power Sebenza substation adjacent to the power station.

Kelvin plans to receive Natural Gas to the CCGT plant via Sasol's gas pipeline network. A short pipeline will be required to connect to the existing gas pipeline network. It is noteworthy that various gas suppliers are currently being engaged to the supply of gas to the CCGT plant via the existing Sasol gas pipeline.

The proposed CCGT is proposed to consist of MW to EHV step-up transformers to tie the generators to the grid. Electricity generated at the Power Station will be evacuated from the plant by means of a new 275 kV lines (or possible cables) with an approximate length of 250 m from the generating plant to the Sebenza 275/88 kV Substation located adjacent to the proposed CCGT plant. Eskom and City Power have shared ownership of the Sebenza Substation and already has space allocated for the integration of Kelvin Power via two 275 kV bays. The Sebenza Substation is connected to the Eskom grid via 275 kV powerlines to Prospect Substation with a transfer capacity of approximately 625 MVA each.

1.2 Scope of Work

The aim of the biodiversity assessment was to provide information to guide the risk of the proposed activity to the current state of the associated ecosystems within the development area. This was achieved through the following:

- Desktop assessment to identify the ecologically important features within the landscape comprising of terrestrial features;
- Desktop assessment to identify possible Species of Conservation Concern (SCC) that occur within the landscape;
- Field survey to record flora and fauna species, especially Species of Conservation Concern (SCC);

- Determination of the Site Ecological Importance (SEI), also commonly referred to as sensitivity; and
- The prescription of mitigation measures for identified risks.

1.3 Assumptions and Limitations

The following assumptions and limitations are applicable for this assessment:

- It is assumed that all information received from the client and landowner is accurate;
- All datasets accessed and utilised for this assessment are considered to be representative of the most recent and suitable data for the intended purposes;
- The assessment area (PAOI) was based on the footprint areas as provided by the client, and any alterations to the area and/or missing GIS information pertaining to the assessment area would have affected the area surveyed and hence the results of this assessment;
- The area was surveyed during a single site visit, therefore, this assessment does not consider temporal trends (note that the data collected is considered sufficient to derive a meaningful baseline);
- The single site visit was conducted during the dry season, and this means that certain flora and fauna would not have been present or observable due to seasonal constraints. However, due to the modified condition of the PAOI and the limited indigenous biodiversity, the season would be unlikely to affect the outcome of this study;
- Whilst every effort was made to cover as much of the PAOI as possible, representative sampling was completed, and by its nature it is possible that some plant and animal species that are present within the PAOI were not recorded during the field investigations; and
- The GPS used in the assessment has an accuracy of 5 m and consequently any spatial features may be offset by up to 5 m.

1.4 Legislative Framework

In line with the protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial biodiversity, as per Government Notice 320 published in terms of NEMA, dated 20 March 2020: "Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation" – section 3, subsection 1:

- An applicant intending to undertake an activity identified in the scope of the protocol, on a site identified on the screening tool as being of 'Very High' sensitivity for terrestrial biodiversity, must submit a Terrestrial Biodiversity Specialist Assessment; however,
- Where the information gathered from the site sensitivity verification differs from the designation of 'Very High' terrestrial biodiversity sensitivity on the screening tool and it is found to be of a 'Low' sensitivity, then a Terrestrial Biodiversity Compliance Statement must be submitted.

The information obtained from a site sensitivity verification, which involved both a desktop assessment as well as a field survey, confirmed that the proposed PAOI is of a 'Very Low' sensitivity. Therefore, this report constitutes a Terrestrial Biodiversity Compliance Statement.

As per sections 2 and 3 of the protocol discussed above, a Terrestrial Biodiversity Compliance Statement must contain the information as presented in Table 1-1 below.

Table 1-1 *Terrestrial Biodiversity Compliance Statement information requirements as per the relevant protocol, including the location of the information within this report*

Information to be Included (as per GN 320, 20 March 2020)	Report Section
Be applicable to the preferred site and proposed development footprint	1
Confirm that the site is of "low" sensitivity for terrestrial biodiversity	3.4.2
Indicate whether or not the proposed development will have any impact on the biodiversity feature	5
The contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae	7.4
A signed statement of independence by the specialist	7.3
Specialist details, including a CV	7.4
A baseline profile description of biodiversity and ecosystems of the site	3.3
Methodology used to undertake the site assessment and survey, and prepare the compliance statement, including relevant equipment and modelling used	7.1
In the case of a linear activity, confirmation from the terrestrial biodiversity specialist that, in their opinion, based on the mitigation and remedial measures proposed, the land can be returned to the current state within two years of completion of the construction phase	N/A
Proposed impact management outcomes or monitoring requirements for inclusion in the EMPr	4
Description of the assumptions and any uncertainties or gaps in knowledge or data	1.3
Any conditions to which this statement is subjected	5.2

A signed copy of the compliance statement must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.

2 Fieldwork

2.1 Biodiversity Field Assessment

A single season field survey was undertaken on the 7th of May 2024, which constitutes a dry season survey, to determine the presence of any local SCC and to achieve the delineation of local habitat types and their associated sensitivities. Effort was made to cover all the different habitat types within the PAOI, within the limits of time, access and security. This site visit is considered sufficient for the project (Figure 2-1).

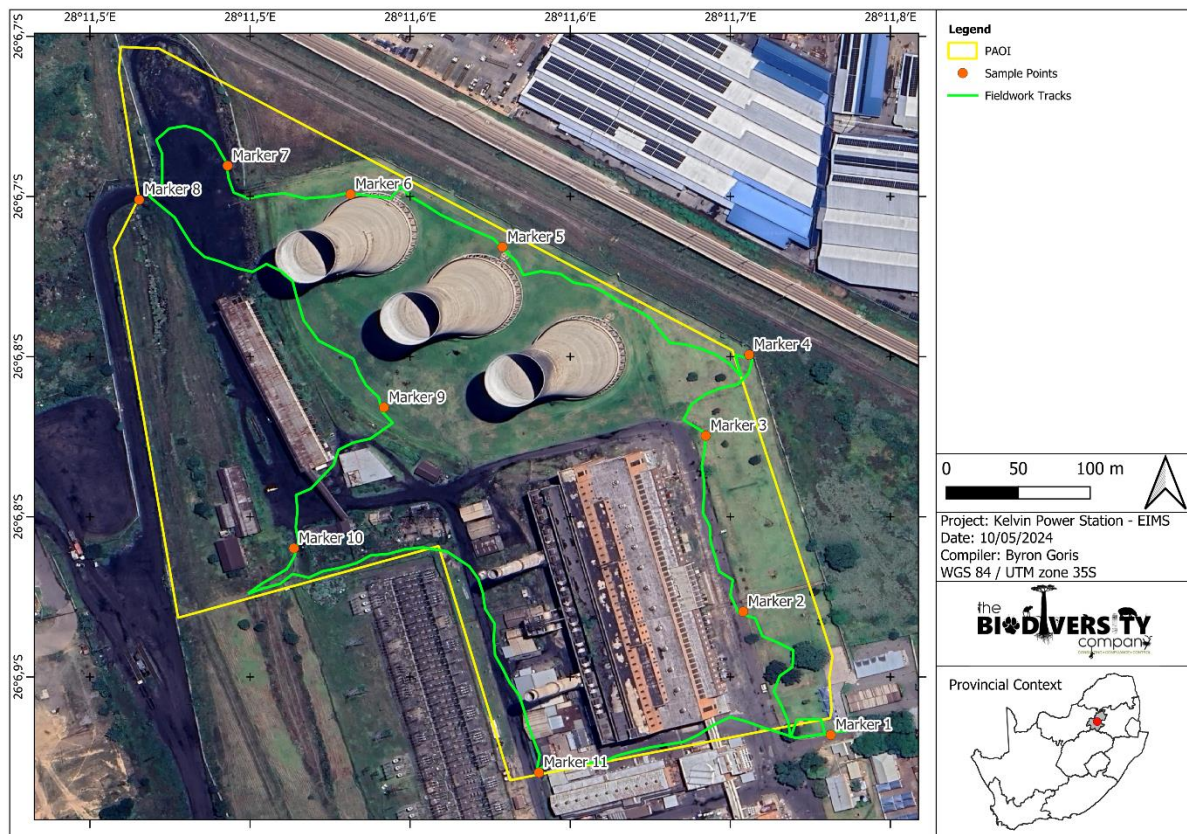


Figure 2-1 Map illustrating the field tracks of the field survey

3 Results & Discussion

3.1 Ecologically Important Landscape Features

Table 3-1 below has been produced as a result of the spatial data collected and analysed as provided by relevant sources. It presents a summative breakdown of the ecological boundaries considered and the associated relevance that each has to the region or PAOI.

Table 3-1 *Summary of relevance of the proposed project to ecologically important landscape features*







Desktop Information Considered	Relevance	Reasoning
Ecosystem Threat Status	Relevant	Overlaps with a 'Least Concern' Ecosystem (RLE, 2021)
Ecosystem Protection Level	Relevant	Overlaps with a 'Poorly Protected' Ecosystem
Provincial Conservation Plan	Irrelevant	Does not overlap with CBA or ESA areas according to Gauteng CP version 3.3
SAPAD & SACAD	Irrelevant	Located approximately 30 km from the Magaliesberg Biosphere Reserve 'Transition' and 'Buffer' zones, approximately 30 km from the Blesbokspruit Ramsar Site and approximately 7 km from the Pamula Park Private Nature Reserve.
Gauteng Ridges	Irrelevant	Does not fall within range of any Gauteng Ridges
National Protected Areas Expansion Strategy	Irrelevant	Does not overlap with Priority Focus Areas (NPAES, 2018)
Important Bird & Biodiversity Areas (IBA)	Relevant	Located approximately 30 km from the Magaliesberg IBA
South African Inventory of Inland Aquatic Ecosystems (SAIIAE)	Irrelevant	Neither the PAOI nor the 500 m regulated area overlaps with any wetlands or rivers
National Freshwater Priority Area	Irrelevant	Neither the PAOI nor the 500 m regulated area overlap with any NFEPA wetlands or rivers



3.2 Biodiversity Field Survey

The following sections discuss the results from the field survey that was conducted for the proposed project, which was undertaken on the 7th of May 2024. Each sample point is described in Table 3-2.

Table 3-2 Sensitivity summary of the survey points and habitat types delineated within the PAOI

Survey Point	Description	SEI	Photographs
Sample Point: 1 Date: 07/05/2024 GPS Coordinates: 26° 6'55.30"S 28°11'44.26"E	<p>Modified</p> <p>High levels of anthropogenic disturbance and transformation. Entrance gates, roads, a parking lot, and a Kikuyu (<i>Pennisetum clandestinum</i>)-dominated lawn as well as surrounding infrastructure are present. Very little to no indigenous vegetation remaining. Some mounds of soil from small mammal diggings – likely attributed to common-mole rats (<i>Cryptomys hottentotus</i>).</p> <p>Dominant indigenous species include <i>Cynodon dactylon</i>, <i>Chloris pycnothrix</i>, and <i>Searsia lancea</i>. The AIP <i>Pennisetum clandestinum</i> (Kikuyu grass) was also dominant.</p> <p>No flora or fauna SCC were recorded or are expected.</p>	Very Low	 
Sample Point: 2 Date: 07/05/2024 GPS Coordinates: 26° 6'52.53"S 28°11'42.29"E	<p>Modified</p> <p>High levels of anthropogenic disturbance and transformation. Entrance gates, roads, and a Kikuyu (<i>Pennisetum clandestinum</i>)-dominated lawn as well as surrounding infrastructure are present. Very little to no indigenous vegetation remaining besides some indigenous tree and grass species. Some mounds of soil from small mammal diggings – likely attributed to common-mole rats (<i>Cryptomys hottentotus</i>).</p> <p>Dominant indigenous species include <i>Melinis repens</i> and <i>Cynodon dactylon</i>. <i>Pennisetum clandestinum</i> (Kikuyu grass) was also dominant – an AIP.</p> <p>No flora or fauna SCC were recorded or are expected.</p>	Very Low	 
Sample Point: 3 Date: 07/05/2024 GPS Coordinates: 26° 6'48.58"S 28°11'41.45"E	<p>Modified</p> <p>High levels of anthropogenic disturbance and transformation. Roads, cooling towers, building material, and a Kikuyu-dominated lawn as well as surrounding infrastructure are present. Very little to no indigenous vegetation remaining.</p>	Very Low	

	<p>Dominant indigenous species include <i>Melinis repens</i>, <i>Cynodon dactylon</i>, and <i>Chloris pycnothrix</i>. AIPs included <i>Pennisetum clandestinum</i> (Kikuyu grass) and <i>Bromus cartharticus</i>.</p> <p>No flora or fauna SCC were recorded or are expected.</p>		
<p>Sample Point: 4 Date: 07/05/2024 GPS Coordinates: 26° 6'46.76"S 28° 11'42.42"E</p>	<p>Modified</p> <p>High levels of anthropogenic disturbance and transformation. Boundary wall, lamp posts, building material, and a Kikuyu (<i>Pennisetum clandestinum</i>)-dominated lawn as well as surrounding infrastructure are present. Very little to no indigenous vegetation remaining besides some grass species.</p> <p>Dominant indigenous species include grasses <i>Hyparrhenia hirta</i>, <i>Cynodon dactylon</i>, and <i>Chloris pycnothrix</i>. <i>Bidens pilosa</i> (Black-jack) also noted throughout.</p> <p>No flora or fauna SCC were recorded or are expected.</p>	Very Low	 
<p>Sample Point: 5 Date: 07/05/2024 GPS Coordinates: 26° 6'44.34"S 28° 11'36.88"E</p>	<p>Modified</p> <p>High levels of anthropogenic disturbance and transformation. Roads, cooling towers, building material, and a Kikuyu (<i>Pennisetum clandestinum</i>)-dominated lawn as well as surrounding infrastructure are present. Very little to no indigenous vegetation.</p> <p>Dominant indigenous species included <i>Cynodon dactylon</i>. AIP and naturalized weed species included <i>Ricinus communis</i>, <i>Bromus cartharticus</i>, and <i>Bidens pilosa</i>. The reptile species <i>Trachylepis punctatissima</i> was also observed.</p> <p>No flora or fauna SCC were recorded or are expected.</p>	Very Low	 
<p>Sample Point: 6 Date: 07/05/2024 GPS Coordinates: 26° 6'43.15"S 28° 11'33.46"E</p>	<p>Modified</p> <p>High levels of anthropogenic disturbance and transformation. Roads, cooling towers, building material, and a Kikuyu (<i>Pennisetum clandestinum</i>)-dominated lawn as well as surrounding infrastructure are present. Very little to no indigenous vegetation remaining.</p>	Very Low	

	<p>Dominant indigenous species limited mostly to <i>Cynodon dactylon</i>, AIP and naturalized weed species included <i>Ricinus communis</i>, <i>Bromus cartharticus</i>, and <i>Bidens pilosa</i>.</p> <p>No flora or fauna SCC were recorded or are expected.</p>	
<p>Sample Point: 7 Date: 07/05/2024 GPS Coordinates: 26° 6'42.51"S 28° 11'30.70"E</p>	<p>Modified</p> <p>High levels of anthropogenic disturbance and transformation. Roads, coal stockpiles, building material, and AIP-dominated vegetated areas as well as surrounding infrastructure are present. Digging and ground disturbances from construction activities, as well as heavy coal-dust pollution was noted. Very little to no indigenous vegetation.</p> <p>Dominant indigenous species included <i>Hyparrhenia hirta</i>. <i>Bidens pilosa</i> (naturalized weed), <i>Conyza bonariensis</i>, <i>Cortaderia selloana</i>, among other AIPs were noted.</p> <p>No flora or fauna SCC were recorded or are expected.</p>	<p>Very Low</p>  
<p>Sample Point: 8 Date: 07/05/2024 GPS Coordinates: 26° 6'43.27"S 28° 11'28.71"E</p>	<p>Modified</p> <p>High levels of anthropogenic disturbance and transformation. Roads, coal stockpiles, building material, and AIP-dominated vegetated areas as well as surrounding infrastructure are present. Old trenching and heavy coal-dust pollution was noted. Very little to no indigenous vegetation remaining.</p> <p>Dominant indigenous species included <i>Hyparrhenia hirta</i>. <i>Bidens pilosa</i> (naturalized weed), <i>Conyza bonariensis</i>, <i>Cortaderia selloana</i>, among other AIPs were noted.</p> <p>No flora or fauna SCC were recorded or are expected.</p>	<p>Very Low</p>  
<p>Sample Point: 9 Date: 07/05/2024 GPS Coordinates: 26° 6'47.94"S 28° 11'34.21"E</p>	<p>Modified</p> <p>High levels of anthropogenic disturbance and transformation. Roads, cooling towers, old vehicle parking and seemingly unused buildings, together with a Kikuyu (<i>Pennisetum clandestinum</i>)-dominated lawn as well as surrounding infrastructure are present. Very little to no indigenous vegetation remaining.</p>	<p>Very Low</p> 

Kelvin Power Station

	<p>High levels of anthropogenic disturbance and transformation. Old vehicle parking and unused buildings, building material, and AIP-dominated vegetated areas as well as surrounding infrastructure are present. Very little to no indigenous vegetation remaining besides some indigenous trees and grass species.</p> <p>Dominant indigenous species limited to <i>Cynodon dactylon</i>. AIPs such as <i>Ricinus communis</i>, <i>Bromus cartharticus</i>, as well as naturalized weed <i>Bidens pilosa</i> were all occurring.</p> <p>No flora or fauna SCC were recorded or are expected.</p>	
<p>Sample Point: 10 Date: 07/05/2024 GPS Coordinates: 26° 6'51.11"S 28° 11'32.19"E</p>	<p>Modified</p> <p>High levels of anthropogenic disturbance and transformation. Roads, building material, and AIP-dominated vegetated areas as well as surrounding infrastructure are present. Heavy coaldust and general pollution were noted. Very little to no indigenous vegetation remaining.</p> <p>Dominant indigenous species included <i>Cynodon dactylon</i>. AIPs noted such as <i>Ricinus communis</i>, <i>Bromus cartharticus</i>, <i>Conyza bonariensis</i>, <i>Tagetes minuta</i>, <i>Ricinus communis</i>, <i>Argemone ochroleuca</i>, as well as naturalized weed <i>Bidens pilosa</i>.</p> <p>No flora or fauna SCC were recorded or are expected.</p> <p>Very Low</p>	 
<p>Sample Point: 11 Date: 07/05/2024 GPS Coordinates: 26° 6'56.15"S 28° 11'37.70"E</p>	<p>Modified</p> <p>High levels of anthropogenic disturbance and transformation. Roads, a substation, building material, and surrounding infrastructure are present. Heavy coaldust and general pollution were noted. Very little to no indigenous vegetation remaining.</p> <p>Dominant indigenous species included <i>Cynodon dactylon</i> and <i>Chloris pycnothrix</i>. Dominant AIP species include <i>Lantana camara</i> and <i>Pennisetum clandestinum</i> (Kikuyu).</p> <p>No flora or fauna SCC were recorded or are expected.</p> <p>Very Low</p>	 

3.3 Habitat Assessment

One (1) main habitat was identified across the PAOI and include:

- Modified

The habitat for the PAOI can be seen delineated in Figure 3-1 and a description of the habitat is presented in Table 3-3.

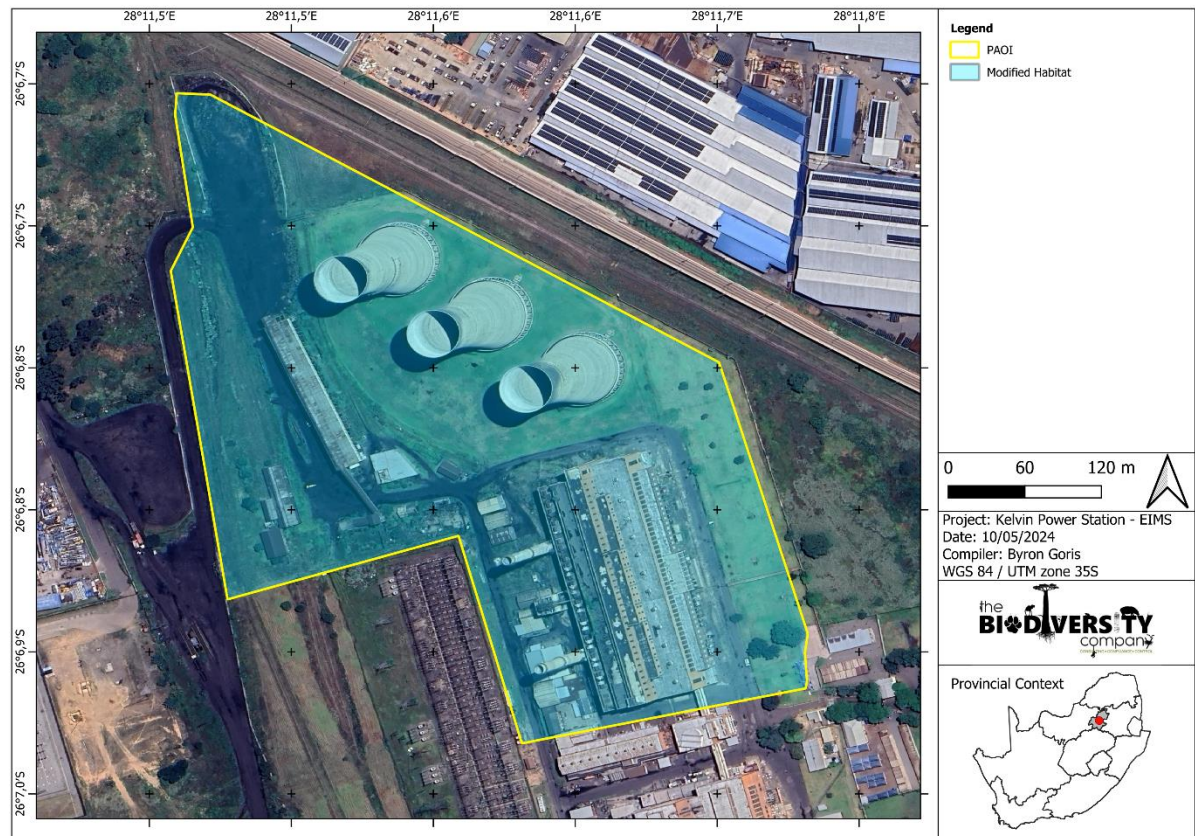


Figure 3-1 Habitats identified within the PAOI.

Table 3-3 Table providing descriptions of the habitat types delineated for the PAOI

Habitat	Description and Condition
Modified	<p>This habitat unit includes all areas that maintain little to no native vegetation and/or where anthropogenic activity has substantially modified an area's primary ecological functions and species composition. Within the PAOI, these areas are comprised of the entrance area consisting of a gate and guard house, roads, parking lots – together with coal power station infrastructure such as cooling towers and various operational buildings. These areas include very few, if any, indigenous species and are associated with alien and invasive plant species.</p> <p>No fauna or flora SCC were observed, and none are expected for the habitat.</p>

3.4 Site Ecological Importance

Based on the criteria provided in Appendix B of this report, all habitats within the PAOI were assigned a sensitivity category, i.e., a SEI category. The PAOI was categorised as possessing habitats with areas with a 'Very Low' SEI (Table 3-3 and Figure 3-5). This indicates that the findings of this assessment are contrary to the Screening Tool with respect to the Combined Terrestrial Biodiversity Theme sensitivity.

Table 3-4 Summary of habitat types delineated within the PAOI

Habitat Type	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance Guidelines
	Very Low	Very Low		Very High	Very Low
Modified	No natural habitat remaining	Several major current negative ecological impacts.	Very Low	Habitat that can recover rapidly (~ less than 5 years) to restore > 75% of the original species composition and functionality of the receptor functionality	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

3.4.1 Desktop Ecological Sensitivity

The following is deduced from the National Web-based Environmental Screening Tool Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended):

- Animal Species Theme sensitivity is High for the proposed development area, due to five (5) medium sensitivity mammal species, and one (1) high sensitivity avifaunal species possibly occurring in the area (Figure 3-2);
- Plant Species Theme sensitivity is Medium for the proposed development area, due to three (3) medium sensitivity flora species possibly occurring in the area (Figure 3-3); and
- Terrestrial Biodiversity Theme sensitivity is Very High for the proposed development area, due to it overlapping with CBA1 and ESA2 areas (according to the screening tool, but not according to the latest Gauteng Conservation Plan datasets as indicated in Table 3-1) (Figure 3-4).

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Aves-Tyto capensis
Medium	Mammalia-Chrysospalax villosus
Medium	Mammalia-Crocidura maquassiensis
Medium	Mammalia-Dasymys robertsii
Medium	Mammalia-Hydricis maculicollis
Medium	Mammalia-Ourebia ourebi ourebi
Medium	Invertebrate-Clonia uvarovi

Figure 3-2 Animal Species Theme Sensitivity

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Medium	Sensitive species 1147
Medium	Brachycorythis conica subsp. transvaalensis
Medium	Sensitive species 1248

Figure 3-3 Plant Species Theme Sensitivity

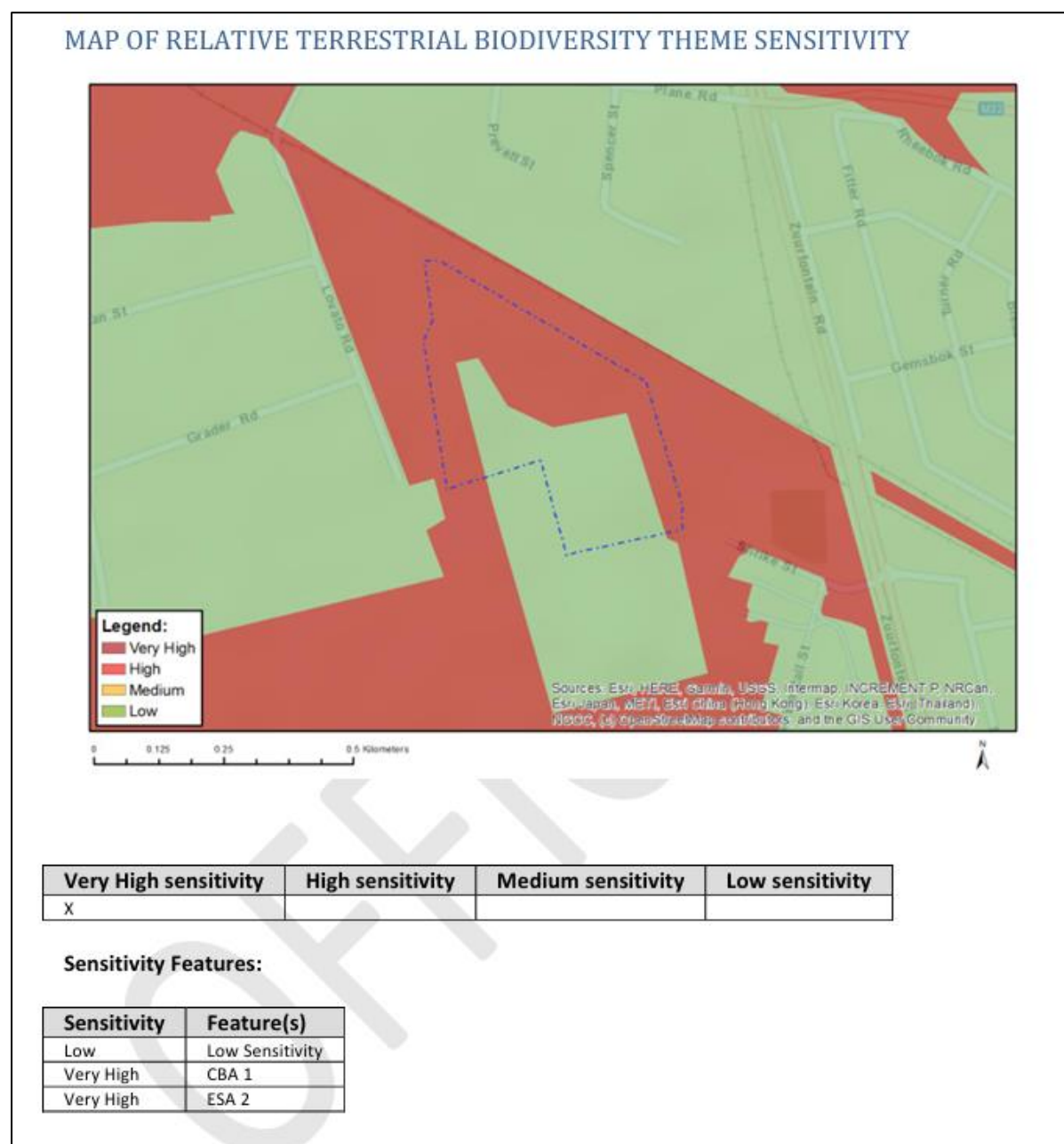


Figure 3-4 Terrestrial Biodiversity Theme Sensitivity

3.4.2 Screening Tool Comparison

The allocated sensitivities for each of the relevant themes are either disputed or validated for the overall PAOI in Table 3-5 below. A summative explanation for each result is provided as relevant. The specialist-assigned sensitivity ratings are based largely on the SEI process followed in the previous section, and consideration is given to any observed or likely presence of SCC or protected species. A map illustrating the overall SEI allocations for the PAOI can be seen in Figure 3-5.

Table 3-5 Summary of the screening tool vs specialist assigned sensitivities.

Screening Tool Theme	Screening Tool	Specialist	Tool Validated or Disputed by Specialist - Reasoning
Animal Theme	High	Low	Disputed – Habitat exists in a heavily transformed and polluted state with high levels of anthropogenic disturbance. No SCC observed and unlikely to occur, however the SCC listed in the screening tool are not easily located – particularly with a single day site visit. Nearby vegetated areas have also had historic

			transformation and ongoing disturbance, unlikely to serve as suitable habitats for indigenous fauna.
Plant Theme	Medium	Very Low	Disputed – Habitat exists in a heavily transformed and polluted state with high levels of anthropogenic disturbance. High numbers of alien and invasive plants. No SCC observed and unlikely to occur.
Terrestrial Theme	Very High	Very Low	Disputed – Habitat exists in a heavily transformed and polluted state with high levels of anthropogenic disturbance – therefore the PAOI has lost substantial ecosystem functionality but can be considered to exist as part of an urban ecosystem. The area and associated habitats will not recover without drastic human intervention and will continue to degrade over time without rehabilitation. No SCC observed and unlikely to occur

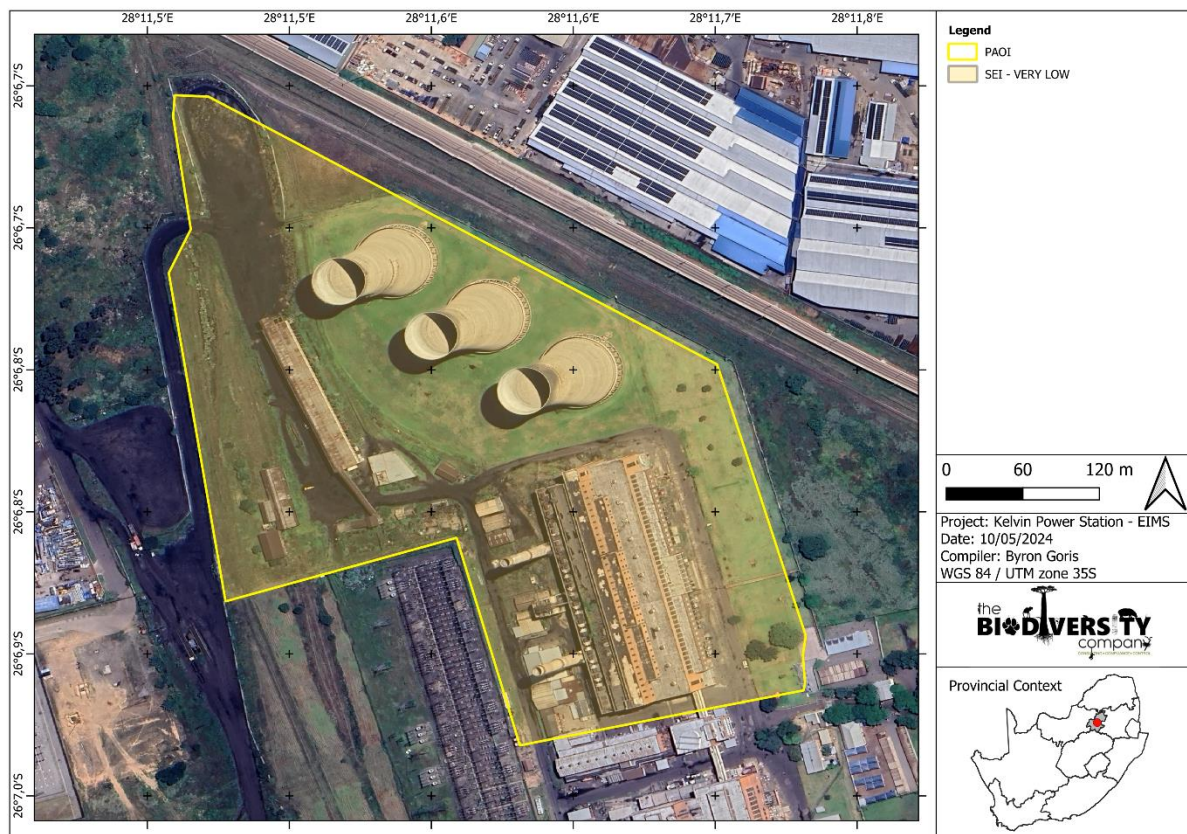


Figure 3-5 Map illustrating the site ecological importance for the PAOI

4 Impact Management and Mitigation Plan

The aim of the management outcomes is to present mitigation actions in such a way that they can be incorporated into the Environmental Management Programme (EMPr), and possible biodiversity management programme, for the project, which should in turn allow for a more successful implementation and auditing of the mitigations and monitoring guidelines. Table 4-1 presents the recommended mitigation measures and the respective time frames, targets, and performance indicators relative to the terrestrial assessment.

The focus of mitigation measures is to reduce the significance of the likely impacts associated with the development, and thereby:

- Prevent the further loss and fragmentation of indigenous vegetation communities within the ecosystem in the vicinity of the PAOI;
- Reduce the negative fragmentation effects of the development and enable the safe movement of fauna species;
- Prevent the direct and indirect loss and disturbance of flora and fauna species and communities; and
- Adequately follow the guidelines for interpreting the Site Ecological Importance ratings assigned to the PAOI.

Table 4-1 *Project specific mitigation measures including requirements for timeframes, roles and responsibilities.*

Management outcome: Vegetation and Habitats				
Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Aspect	Frequency
Laydown and construction preparation activities (such as cement mixing, temporary toilets, etc.) must be limited to already Modified areas and should take up the smallest footprint possible.	Construction Phase	Project manager, Environmental Officer	Development footprint	Ongoing
It is recommended that areas to be developed/disturbed be specifically demarcated so that during the construction/activity phase, only the demarcated areas be impacted upon.	Construction Phase	Project manager, Environmental Officer	Development footprint	Ongoing
Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should not be fragmented or disturbed further if possible.	Construction Phase	Project manager, Environmental Officer	Development footprint	Ongoing
All vehicles and personnel must make use of existing roads and walking paths as far as possible, especially construction/operational vehicles.	Construction Phase	Project manager, Environmental Officer	Development footprint	Ongoing
The clearing of indigenous vegetation must be minimized where possible. Clearing of AIP vegetation, which dominated the PAOI, is advocated. All activities must be restricted to within the authorized areas.	Life of operation	Project manager, Environmental Officer	Areas of indigenous vegetation	Ongoing
A final site walkthrough must be conducted prior to the construction phase. The site walkthrough must be conducted during the summer season between October and March. Priority must be the identification of any listed flora species.	Planning Phase, Pre-Construction	Project manager, Environmental Officer & Contractor	Plant & animal species	Once off
Although not noted during the site visit documented herein, any observed TOPS (Threatened or Protected Species) of plants must be clearly demarcated prior to the commencement of site clearing. If construction activities are likely to affect any SCC or protected plants these individuals must be relocated as part of a plant rescue and protection plan, and a permit must be obtained before doing so.	Planning Phase	Environmental Officer	Protected plants and SCC	During phase
Materials may not be stored for extended periods of time and must be removed from the PAOI once the construction phase has been concluded. No permanent construction phase structures should be permitted. Construction buildings should preferably be prefabricated or constructed of re-usable/recyclable materials. No storage of vehicles or equipment will be allowed outside of the designated laydown areas.	Construction and Operational Phase	Environmental Officer, Design Engineer, and Contractor	Laydown areas	Ongoing
Areas that are denuded during construction need to be re-vegetated with indigenous vegetation according to a habitat rehabilitation plan, to prevent erosion during flood and wind events and to promote the regeneration of functional habitat. This will also reduce the likelihood of encroachment by alien invasive plant species. All grazing mammals must be kept out of the areas that have recently been re-planted, however these animals are highly unlikely to occur within this PAOI.	Operational phase	Environmental Officer & Contractor	Assess the state of rehabilitation and encroachment of alien vegetation	Quarterly for up to two years after the closure

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A hydrocarbon spill management plan must be put in place to ensure that should there be any chemical spill out or over that it does not run into the surrounding areas. The Contractor shall be in possession of an emergency spill kit that must always be complete and available on site.

- Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use.
- No servicing of equipment on site unless necessary.
- All contaminated soil / yard stone shall be treated in situ or removed and be placed in containers.
- Appropriately contain any generator diesel storage tanks, machinery spills (e.g., accidental spills of hydrocarbons oils, diesel etc.) in such a way as to prevent them from leaking and entering the environment.
- Construction activities and vehicles could cause spillages of lubricants, fuels and waste material negatively affecting the functioning of the ecosystem.
- All vehicles and equipment must be maintained, and all re-fueling and servicing of equipment is to take place in demarcated areas outside of the PAOI.

Life of operation

Environmental
Officer &
ContractorSpill events,
Vehicles dripping.

Ongoing

It must be made an offence for any staff member to remove any indigenous plant species from the PAOI or bring any alien species in. This is to prevent the spread of exotic or alien species or the illegal collection of plants.

Life of operation

Project
manager,
Environmental
Officer

Any instances

Ongoing

A fire management plan needs to be compiled and implemented to restrict the impact fire would have on the surrounding areas.

Life of operation

Environmental
Officer &
Contractor

Fire Management

During
Phase

All construction waste must be removed from site at the closure of the construction phase.

Construction phase

Environmental
Officer &
Contractor

Construction waste

During
Phase

Management outcome: Fauna

Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Aspect	Frequency
<p>A qualified environmental control officer must be on site when activities begin. A site walk through must be performed by a suitably qualified ecologist prior to any activities taking place and any SSC or protected species should be noted. Specific attention should be given to the five (5) medium sensitivity mammal species, and one (1) high sensitivity avifaunal species (Grass Owl) noted in the screening tool. All six species are not easily located in the context of a short one-day site visit but are also unlikely to occur in the heavily disturbed PAOI irrespective.</p> <p>In situations where these species are observed and must be removed, the proponent may only do so after the required permission/permits have been obtained in accordance with national and provincial legislation. In the abovementioned situation the development and implementation of a search, rescue and</p>	Construction Phase	Environmental Officer, Contractor	Presence of any floral or faunal SSC	During phase

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recovery program is suggested for the protection of these species. Should animals not move out of the area on their own, relevant specialists must be contacted to advise on how the species can be relocated.				
Clearing and disturbance activities must be conducted in a progressive linear manner, always outwards and away from the centre of the PAOI and over several days, so as to provide an easy escape route for all small mammals and herpetofauna.	Construction Phase	Environmental Officer & Contractor	Progressive land clearing operations and the movement of fauna	Ongoing
The areas to be disturbed must be specifically and responsibly demarcated to prevent the movement of staff or any individual into the surrounding environments, signs must be put up to enforce this.	Construction/Operational Phase	Project manager, Environmental Officer	Infringement into these areas	Ongoing
The duration of the activities should be minimised to as short a term as possible, to reduce the period of disturbance on fauna.	Construction	Project manager, Environmental Officer & Design Engineer	Construction/Closure Phase	Ongoing
Noise must be kept to an absolute minimum during the evenings and at night to minimise all possible disturbances to reptile species and nocturnal mammals.	Construction/Operational Phase	Environmental Officer	Noise levels	Ongoing
No trapping, killing, or poisoning of any wildlife is to be allowed and signs must be put up to enforce this. Monitoring must take place in this regard.	Life of operation	Environmental Officer	Evidence of trapping etc	Ongoing
Outside lighting should be designed and limited to minimise impacts on fauna. All outside lighting should be directed away from any sensitive areas. Fluorescent and mercury vapor lighting should be avoided, and sodium vapor (green/red) lights should be used wherever possible.	Construction/Operational Phase	Project manager, Environmental Officer & Design Engineer	Light pollution and period of light	Ongoing
All construction and maintenance motor vehicle operators should undergo an environmental induction that includes instruction on the need to comply with speed limits, to respect all forms of wildlife. Speed limits must be enforced to ensure that road killings and erosion is limited.	Life of operation	Health and Safety Officer	Compliance to the training	Ongoing
Schedule activities and operations during least sensitive periods, to avoid migration, nesting, and breeding seasons. In this case, activities should take place during the day.	Life of operation	Project manager, Environmental Officer & Design Engineer	Activities should take place during the day	Ongoing
Any holes/deep excavations must be dug in a progressive manner and shouldn't be left open overnight. Should any holes remain open overnight they must be properly covered temporarily to ensure that no small fauna species fall in. Holes must be subsequently inspected for fauna prior to backfilling.	Planning and Construction	Environmental Officer & Contractor, Engineer	Presence of trapped animals and open holes	Ongoing
If fencing is required: wildlife-permeable fencing with holes large enough for mongoose and other smaller mammals should be installed, the holes must not be placed in the fence where it is next to a major road as this will increase road killings in the area.	Planning and construction	Environmental Officer & Contractor, Engineer	Fauna movement corridor	Ongoing

Management outcome: Alien Species

Impact Management Actions	Implementation	Monitoring
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	Phase	Responsible Party	Phase	Responsible Party
An Alien Invasive Plant (AIP) Management Plan must be compiled and implemented. This should regularly be updated to reflect the annual changed in AIP composition.	Life of operation	Project manager, Environmental Officer & Contractor	Manage and assess presence and encroachment of alien vegetation	Twice a year
The footprint area of the construction should be kept to a minimum. The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas. Footprints of the roads must be kept to prescribed widths.	Construction/Operational Phase	Project manager, Environmental Officer & Contractor	Footprint Area	Life of operation
A pest control plan must be put in place and implemented; it is imperative that poisons not be used to control pests.	Life of operation	Environmental Officer & Health and Safety Officer	Evidence or presence of pests	Life of operation
Management outcome: Dust				
Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Phase	Responsible Party
Dust-reducing mitigation measures must be put in place and must be strictly adhered to. This includes the wetting of exposed soft soil surfaces. No non-environmentally friendly suppressants may be used as this could result in the pollution of water sources.	Construction phase	Contractor	Dustfall	Dust monitoring program.
Management outcome: Waste Management				
Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Phase	Responsible Party
Waste management must be a priority and all waste must be collected and stored effectively and responsibly according to a site-specific waste management plan. Dangerous waste such as metal wires and glass must only be stored in fully sealed and secure containers, before being moved off site as soon as possible.	Life of operation	Environmental Officer & Contractor	Waste Removal	Weekly
Litter, spills, fuels, chemical and human waste in and around the PAOI must be minimised and controlled according to the waste management plan.	Construction/Closure Phase	Environmental Officer & Health and Safety Officer	Presence of Waste	Daily
Cement mixing may not be performed on the ground. It is recommended that only closed side drum or pan type concrete mixers be utilised. Any spills must be immediately contained and isolated from the natural environment, before being removed from site.	Construction Phase	Environmental Officer & Contractor	Cement mixing and spills	Every occurrence
Toilets at the recommended Health and Safety standards must be provided. These should be emptied regularly and once no longer required, they must be pumped dry to prevent leakage into the surrounding environment and removed from site.	Life of operation	Environmental Officer & Health and Safety Officer	Number of toilets per staff member. Waste levels	Daily
The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected shall be disposed of at a licensed disposal facility within every 10 days at least.	Life of operation	Environmental Officer & Health and Safety Officer	Availability of bins and the collection of the waste	Ongoing
Where a registered disposal facility is not available close to the PAOI, the Contractor shall provide a method statement with regards to waste management. Under no circumstances	Life of operation	Environmental Officer, Contractor & Health and Safety Officer	Collection/handling of the waste	Ongoing

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may domestic waste be burned on site or buried on open pits.

Refuse bins will be responsibly emptied and secured. Temporary storage of domestic waste shall be in covered and secured waste skips. Maximum domestic waste storage period will be 10 days.

Life of operation

Environmental Officer,
Contractor & Health and Safety Officer

Management of bins and collection of waste

Ongoing, every 10 days

Management outcome: Environmental Awareness Training

Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Phase	Responsible Party
All personnel and contractors are to undergo Environmental Awareness Training. A signed register of attendance must be kept for proof. Discussions are required on sensitive environmental receptors within the PAOI to inform contractors and site staff of the presence of protected species, their identification, conservation status and importance, biology, habitat requirements and management requirements in line with the Environmental Authorisation and within the EMP. Contractors and employees must all undergo the induction and must be made aware of any sensitive areas to be avoided.	Pre-construction phase	Health and Safety Officer, Environmental Officer	Compliance to the training	Ongoing

Management outcome: Environmental Awareness Training

Impact Management Actions	Implementation		Monitoring	
	Phase	Responsible Party	Phase	Responsible Party
Speed limits must be put in place to reduce erosion. Soil surfaces must be wetted as necessary to reduce the dust generated by the project activities. Speed bumps and signs must be erected to enforce slow speeds.	Life of operation	Project manager, Environmental Officer	Water Runoff from road surfaces	Ongoing
Only existing access routes and walking paths may be made use of.	Life of operation	Project manager, Environmental Officer	Routes used within the area	Ongoing
Areas that are denuded during construction need to be re-vegetated with indigenous vegetation to prevent erosion during flood events etc.	Life of operation	Project manager, Environmental Officer	Re-establishment of indigenous vegetation	Progressively
A stormwater management plan must be compiled and implemented if necessary.	Life of operation	Project manager, Environmental Officer	Management plan	Before construction phase: Ongoing

5 Conclusion

The PAOI exists in a predominantly modified and degraded state, having been subjected to various anthropogenic impacts such as human ingress, brush cutting and vegetation clearing, dumping of rubble, high numbers of alien and invasive plants, overall transformation, coal storage areas, operating of a coal-fired power station and other related disturbances. This habitat is unlikely to recover without human intervention and will continue to degrade further without active rehabilitation.

Completion of the terrestrial biodiversity assessment led to the dispute of the 'Very High' classification for the terrestrial biodiversity theme sensitivity as allocated by the National Environmental Screening Tool. The PAOI is instead assigned an overall terrestrial sensitivity of 'Very Low'.

5.1 Impact Statement

The location, state and size of the ecosystem suggests that it is unlikely that any functional habitat or SCCs will be lost as a result of the impacts arising from the proposed activities.

5.2 Specialist Opinion

It is the opinion of the specialist that the proposed development is favourable only if all mitigation measures provided in this and other specialist reports are implemented.

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7 Appendix Items

7.1 Appendix A: Methods

7.1.1 Desktop Dataset Assessment

7.1.1.1 Ecologically Important Landscape Features

Existing ecologically relevant data layers were incorporated into a GIS to establish how the proposed development might interact with any ecologically important entities. Emphasis was placed around the following spatial datasets:

- National Biodiversity Assessment 2018 (Skowno *et al*, 2019) - The purpose of the National Biodiversity Assessment (NBA) is to assess the state of South Africa's biodiversity based on best available science, with a view to understanding trends over time and informing policy and decision-making across a range of sectors. The NBA deals with all three components of biodiversity: genes, species and ecosystems; and assesses biodiversity and ecosystems across terrestrial, freshwater, estuarine and marine environments. The two headline indicators assessed in the NBA are:
- Ecosystem Threat Status – indicator of an ecosystem's wellbeing, based on the level of change in structure, function or composition. Ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT) or Least Concern (LC), based on the proportion of the original extent of each ecosystem type that remains in good ecological condition. Red List of Ecosystems (RLE) 2021 – The list was first published in 2011 and has since been substantially revised by authors Dr Andrew Skowno and Mrs Maphale Monyeki (SANBI, 2022). This list is based on assessments that followed the International Union for Conservation of Nature (IUCN) Red List of Ecosystems Framework (version 1.1) and covers all 456 terrestrial ecosystem types described in South Africa by Mucina and Rutherford (2006). A total of 120 of the 456 terrestrial ecosystem types assessed are categorised as threatened and together make up approximately 10% of the remaining natural habitat in the country. Of these 120 ecosystem types, 55 are Critically Endangered (CR), 51 Endangered (EN) and 14 are Vulnerable (VU). The remainder are categorised as Least Concern (LC) (SANBI, 2022; Skowno & Monyeki, 2021).
- Ecosystem Protection Level – indicator of the extent to which ecosystems are adequately protected or under-protected. Ecosystem types are categorised as Well Protected (WP), Moderately Protected (MP), Poorly Protected (PP), or Not Protected (NP), based on the proportion of the biodiversity target for each ecosystem type that is included within one or more protected areas. Not Protected, Poorly Protected or Moderately Protected ecosystem types are collectively referred to as under-protected ecosystems.
- Protected areas:
 - South Africa Protected Areas Database (SAPAD) and South Africa Conservation Areas Database (SACAD) (DFFE, 2023a) – The South African Protected Areas Database (SAPAD) and South Africa Conservation Areas Database (SACAD) contains spatial data for the conservation of South Africa. It includes spatial and attribute information for both formally protected areas and areas that have less formal protection. The database is updated on a continuous basis and forms the basis for the Register of Protected Areas which is a legislative requirement under the National Environmental Management: Protected Areas Act, Act 57 of 2003.

- National Protected Areas Expansion Strategy (NPAES) (DFFE, 2022b) – The National Protected Area Expansion Strategy (NPAES) provides spatial information on areas that are suitable for terrestrial ecosystem protection. These focus areas are large, intact and unfragmented and are therefore, of high importance for biodiversity, climate resilience and freshwater protection.
- Conservation/Biodiversity Sector Plans:

The Gauteng Conservation Plan (Version 3.3) (GDARD, 2014b) classified areas within the province on the basis of its contribution to reach the conservation targets within the province. These areas are classified as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) to ensure sustainability in the long term. The CBAs are classified as either 'Irreplaceable' (must be conserved), or 'Important'.

Critical Biodiversity Areas (CBAs) are terrestrial and aquatic areas of the landscape that need to be maintained in a natural or near-natural state to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services. Thus, if these areas are not maintained in a natural or near natural state then biodiversity targets cannot be met.

- Gauteng Ridges

The quartzite ridges of Gauteng are one of the most important natural assets in this northern province of South Africa. This is because these ridges, and the areas immediately surrounding them, provide unique habitat for a wide variety of fauna and flora, some of which are Red-Listed, rare or endemic species, or in the case of certain plant species, are found nowhere else in South Africa or around the world.

In order to give practical effect to this policy, the Gauteng Department of Agriculture and Rural Development (GDARD) has classified all ridges in Gauteng into one of four classes, based on the existing extent and percentage of area converted by urban development or disturbed by other human activities. According to GDARD (2019), the ridges within Gauteng may be classified as follows:

- Class 1 Ridges: 5% or less of the ridge area has been transformed by human activity (Approx. 58% of ridges fall within this category);
- Class 2 Ridges: Between 6 and 34% of the ridge area has been transformed by human activity (Approx. 23% of ridges fall within this category);
- Class 3 Ridges: Between 35 and 64% of the ridge area has been transformed by human activity (Approx. 8% of ridges fall within this category); and
- Class 4 Ridges: Over 65% of the ridge area has been transformed by human activity (Approx. 11% of ridges fall within this category).

The 2019 Ridges Guideline has defined general guidelines that must be followed with regard to the amount of development that should be permitted on different ridges according to their class. GDARD (2019) stipulates that no development is to be permitted on any class 1 ridge, and varying levels of development may be permissible with regards to the higher ridge classes – depending on the impact level of the proposed activity and the corresponding spatial scale. Buffers and permitted developments are as follows (GDARD, 2019):

- Class 1 Ridges: Only low impact activities with an ecological footprint of 5% or less in the 200 m buffer zone of the ridge will be supported and no development will be permitted in the ridge itself;
 - Class 2 Ridges: Development activities and uses that have a high environmental impact on a Class 2 ridge will not be permitted. Low impact development activities, such as tourism facilities, which comprise of an ecological footprint of 5% or less of the property may be supported (the ecological footprint includes all areas directly impacted on by a development activity, including all paved surfaces, landscaping, property access and service provision). Low impact development activities on a ridge will not be supported where it is feasible to undertake the development on a portion of the property abutting the ridge;
 - Class 3 Ridges: The guidelines for Class 2 ridges will be applied to areas of the ridge that have not been significantly impacted on by human activity. The guidelines for Class 3 ridges will be applied to areas of the ridge that have been significantly impacted on by human activity; and
 - Class 4 Ridges: Further development activities will not be supported in areas of the ridge where the remaining contiguous extent of natural habitat is 4 ha or more.
- Important Bird and Biodiversity Areas (BirdLife South Africa, 2015) – Important Bird and Biodiversity Areas (IBAs) constitute a global network of over 13 500 sites, of which 112 sites are found in South Africa. IBAs are sites of global significance for bird conservation, identified through multi-stakeholder processes using globally standardised, quantitative and scientifically agreed criteria; and
 - Freshwater Ecology:
 - Strategic Water Source Areas (SWSAs) (Le Maitre *et al*, 2018) – SWSAs are defined as areas of land that supply a quantity of mean annual surface water runoff in relation to their size and therefore, contribute considerably to the overall water supply of the country. These are key ecological infrastructure assets and the effective protection of surface water SWSAs areas is vital for national security because a lack of water security will compromise national security and human wellbeing.
 - South African Inventory of Inland Aquatic Ecosystems (SAIIAE) (Van Deventer *et al*, 2018) – A South African Inventory of Inland Aquatic Ecosystems (SAIIAE) was established during the National Biodiversity Assessment of 2018. It is a collection of data layers that represent the extent of river and inland wetland ecosystem types as well as pressures on these systems.
 - National Freshwater Ecosystem Priority Area (NFEPA) (Nel *et al.*, 2011) – The NFEPA database provides strategic spatial priorities for conserving the country's freshwater ecosystems and associated biodiversity as well as supporting sustainable use of water resources.

7.2 Appendix B: Terrestrial Site Ecological Importance

The different habitat types within the PAOI were delineated and identified based on observations made during the field survey, and information from available satellite imagery. These habitat types were assigned Ecological Importance (EI) categories based on their ecological integrity, conservation value, the presence of SCC and their ecosystem processes.

Site Ecological Importance (SEI) is a function of the Biodiversity Importance (BI) of the receptor (e.g., SCC, the vegetation/fauna community or habitat type present in the Project Area) and Receptor Resilience (RR) (its resilience to impacts).

BI is a function of Conservation Importance (CI) and the Functional Integrity (FI) of the receptor. The criteria for the CI and FI ratings are provided in Table 7-1 and Table 7-2 respectively.

Table 7-1 Summary of Conservation Importance (CI) criteria

Conservation Importance	Fulfilling Criteria
Very High	Confirmed or highly likely occurrence of Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Extremely Rare or CR species that have a global extent of occurrence (EOO) of < 10 km ² . Any area of natural habitat of a CR ecosystem type or large area (> 0.1% of the total ecosystem type extent) of natural habitat of an EN ecosystem type. Globally significant populations of congregatory species (> 10% of global population).
High	Confirmed or highly likely occurrence of CR, EN, VU species that have a global EOO of > 10 km ² . IUCN threatened species (CR, EN, VU) must be listed under any criterion other than A. If listed as threatened only under Criterion A, include if there are less than 10 locations or < 10 000 mature individuals remaining. Small area (> 0.01% but < 0.1% of the total ecosystem type extent) of natural habitat of EN ecosystem type or large area (> 0.1%) of natural habitat of VU ecosystem type. Presence of Rare species. Globally significant populations of congregatory species (> 1% but < 10% of global population).
Medium	Confirmed or highly likely occurrence of populations of Near Threatened (NT) species, threatened species (CR, EN, VU) listed under Criterion A only and which have more than 10 locations or more than 10 000 mature individuals. Any area of natural habitat of threatened ecosystem type with status of VU. Presence of range-restricted species. > 50% of receptor contains natural habitat with potential to support SCC.
Low	No confirmed or highly likely populations of SCC. No confirmed or highly likely populations of range-restricted species. < 50% of receptor contains natural habitat with limited potential to support SCC.
Very Low	No confirmed and highly unlikely populations of SCC. No confirmed and highly unlikely populations of range-restricted species. No natural habitat remaining.

Table 7-2 Summary of Functional Integrity (FI) criteria

Functional Integrity	Fulfilling Criteria
Very High	Very large (> 100 ha) intact area for any conservation status of ecosystem type or > 5 ha for CR ecosystem types. High habitat connectivity serving as functional ecological corridors, limited road network between intact habitat patches. No or minimal current negative ecological impacts, with no signs of major past disturbance.
High	Large (> 20 ha but < 100 ha) intact area for any conservation status of ecosystem type or > 10 ha for EN ecosystem types. Good habitat connectivity, with potentially functional ecological corridors and a regularly used road network between intact habitat patches. Only minor current negative ecological impacts, with no signs of major past disturbance and good rehabilitation potential.
Medium	Medium (> 5 ha but < 20 ha) semi-intact area for any conservation status of ecosystem type or > 20 ha for VU ecosystem types. Only narrow corridors of good habitat connectivity or larger areas of poor habitat connectivity and a busy used road network between intact habitat patches. Mostly minor current negative ecological impacts, with some major impacts and a few signs of minor past disturbance. Moderate rehabilitation potential.
Low	Small (> 1 ha but < 5 ha) area. 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. Low rehabilitation potential. Several minor and major current negative ecological impacts.
Very Low	Very small (< 1 ha) area. No habitat connectivity except for flying species or flora with wind-dispersed seeds. Several major current negative ecological impacts.

BI can be derived from a simple matrix of CI and FI as provided in Table 7-3.

Table 7-3 Matrix used to derive Biodiversity Importance (BI) from Functional Integrity (FI) and Conservation Importance (CI)

Biodiversity Importance		Conservation Importance				
		Very High	High	Medium	Low	Very Low
Functional Integrity	Very High	Very High	Very High	High	Medium	Low
	High	Very High	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very Low
	Low	Medium	Medium	Low	Low	Very Low
	Very Low	Medium	Low	Very Low	Very Low	Very Low

The fulfilling criteria to evaluate RR are based on the estimated recovery time required to restore an appreciable portion of functionality to the receptor, as summarised in Table 7-4.

Table 7-4 Summary of Receptor Resilience (RR) criteria

Resilience	Fulfilling Criteria
Very High	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: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.
High	Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.
Medium	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: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.
Low	Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.
Very Low	Habitat that is unable to recover from major impacts, or species that are unlikely to: (i) remain at a site even when a disturbance or impact is occurring, or (ii) return to a site once the disturbance or impact has been removed.

After the determination of BI and RR, the SEI can be ascertained using the matrix as provided in Table 7-5.

Table 7-5 Matrix used to derive Site Ecological Importance from Receptor Resilience (RR) and Biodiversity Importance (BI)

Site Ecological Importance		Biodiversity Importance				
		Very High	High	Medium	Low	Very Low
Receptor Resilience	Very Low	Very High	Very High	High	Medium	Low
	Low	Very High	Very High	High	Medium	Very Low
	Medium	Very High	High	Medium	Low	Very Low
	High	High	Medium	Low	Very Low	Very Low
	Very High	Medium	Low	Very Low	Very Low	Very Low

Interpretation of the SEI in the context of the proposed project is provided in Table 7-6.

Table 7-6 *Guideline for interpreting Site Ecological Importance in the context of proposed activities*

Site Ecological Importance	Interpretation in relation to proposed development activities
Very High	Avoidance mitigation – no destructive development activities should be considered. Offset mitigation not acceptable/not possible (i.e., last remaining populations of species, last remaining good condition patches of ecosystems/unique species assemblages). Destructive impacts for species/ecosystems where persistence target remains.
High	Avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted, limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.
Medium	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
Low	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.
Very Low	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

The SEI evaluated for each taxon can be combined into a single multi-taxon evaluation of SEI for the assessment area. Either a combination of the maximum SEI for each receptor should be applied, or the SEI may be evaluated only once per receptor but for all necessary taxa simultaneously. For the latter, justification of the SEI for each receptor is based on the criteria that conforms to the highest CI and FI, and the lowest RR across all taxa.

7.3 Appendix C – Specialist Declaration of Independence

I, Byron Goris, declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in ^{SEP}terms of Section 24F of the Act.



Byron Goris

Terrestrial Ecologist

The Biodiversity Company

May 2024

I, Andine Erasmus, declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.



Andine Erasmus

Ecologist

The Biodiversity Company

May 2024

I, Andrew Husted, declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.



Andrew Husted

Ecologist

The Biodiversity Company

May 2024

7.4 Appendix D – Specialist CVs

Byron Goris

B.Sc Hons in Global Socio-Ecological Systems Change

Cell: +27 81 790 8603

Email: byron@thebiodiversitycompany.com

Identity Number: 9904145161083

Date of birth: 14 April 1999



Profile Summary	Key Experience	Nationality
Environmental work experience across South Africa (2 years).	<ul style="list-style-type: none"> Aquatic, Terrestrial, and Wetland Ecological Assessments 	South African
Theoretical and practical understanding of methodology in both aquatic, terrestrial, and global change ecology.	<ul style="list-style-type: none"> Environmental Field work and basic field methodology 	Languages
General training and experience in aspects of conservation, biogeography, and socio-economic sustainability.	<ul style="list-style-type: none"> Business sustainability Sports Ecology Research Habitat delineation Field work and research 	English – Proficient Afrikaans – Basic
Areas of Interest	Country Experience	Qualifications
Ecological systems approaches, global environmental change, socio-economic sustainability, multi/trans-disciplinarity, sports ecology, traditional medicinal plant science.	South Africa	<ul style="list-style-type: none"> BSc (Hons) Animals, Plants, and Environmental Sciences; University of the Witwatersrand BSc Biology, University of the Witwatersrand

CURRICULUM VITAE: Byron Goris

Andine Erasmus

M.Sc. Zoology

Candidate Natural Scientist 164894

Cell: +27 64 417 6320

Email: andine@thebiodiversitycompany.com

Identity Number: 9504080028089

Date of birth: 8 April 1995



Profile Summary

Work experience in South Africa and Mauritius.

Biodiversity specialist experience in projects related to infrastructure development, renewable energy, mining, and prospecting.

Specific expertise includes terrestrial ecology, including mammals, herpetofauna, avifauna and flora, as well as report writing for environmental compliance, monitoring, management, and rehabilitation.

Areas of Interest

Zoology, Biodiversity, Conservation, Rehabilitation and Marine Biology.

Key Experience

- Terrestrial Ecological Assessments
- Rehabilitation plans and monitoring
- Habitat delineation
- Field work and research
- Environmental Management Programs (EMPr)
- Invasive Species Plans

Country Experience

South Africa
Mauritius

Nationality

South African

Languages

English – Proficient
Afrikaans – Proficient

Qualifications

- MSc Zoology (*Cum Laude*), University of Pretoria
- BSc (Hons) Zoology, University of Pretoria
- BSc Zoology, University of Pretoria
- Cand Sci Nat (164894)
- Africa Land-Use Training, Grass Identification (2024)

Andrew Husted

M.Sc Aquatic Health (*Pr Sci Nat*)

Cell: +27 81 319 1225

Email: andrew@thebiodiversitycompany.com

Identity Number: 7904195054081

Date of birth: 19 April 1979



Profile Summary

Working experience throughout South Africa, West and Central Africa and also Armenia & Serbia.

Specialist experience in exploration, mining, engineering, hydropower, private sector and renewable energy.

Experience with project management for national and international multi-disciplinary projects.

Specialist guidance, support and facilitation for the compliance with legislative processes, for in-country requirements, and international lenders.

Specialist expertise include Instream Flow and Ecological Water Requirements, Freshwater Ecology, Terrestrial Ecology and also Ecosystem Services.

Areas of Interest

Sustainability and Conservation.

Instream Flow and Ecological Water Requirements.

Publication of scientific journals and articles.

Key Experience

- World Bank, Equator Principles and the International Finance Corporation requirements
- Environmental, Social and Health Impact Assessments (ESHIA)
- Environmental Management Programmes (EMP)
- Ecological Water Requirement determination experience
- Wetland delineations and ecological assessments
- Rehabilitation Plans and Monitoring
- Fish population structure assessments
- The use of macroinvertebrates to determine water quality
- Aquatic Ecological Assessments
- Aquaculture

Country Experience

Angola, Botswana, Cameroon

Democratic Republic of Congo

Ghana, Ivory Coast, Lesotho

Liberia, Mali, Mauritius, Mozambique

Nigeria, Republic of Armenia,

Senegal, Serbia, Sierra Leone, South Africa

Tanzania

Nationality

South African

Languages

English – Proficient

Afrikaans – Conversational

German - Basic

Qualifications

- MSc (University of Johannesburg) – Aquatic Health.
- BSc Honours (Rand Afrikaans University) – Aquatic Health
- BSc Natural Science
- Pr Sci Nat (400213/11)
- Certificate of Competence: Mondi Wetland Assessments
- Certificate of Competence: Wetland WET-Management
- SASS 5 (Expired) – Department of Water Affairs and Forestry for the River Health Programme
- EcoStatus application for rivers and streams

CURRICULUM VITAE: Andrew Husted



forestry, fisheries & the environment

Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

Private Bag X447, Pretoria, 0001, Environment House, 473 Steve Biko Road, Pretoria, 0002 Tel: +27 12 399 9000, Fax: +27 86 625 1042

SPECIALIST DECLARATION FORM – AUGUST 2023

Specialist Declaration form for assessments undertaken for application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

REPORT TITLE

Terrestrial Biodiversity Compliance Statement for the proposed Kelvin Power Station Combined Cycle Gas Turbine Power Plant Project

Kindly note the following:

1. This form must always be used for assessment that are in support of applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting, where this Department is the Competent Authority.
2. This form is current as of August 2023. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.dffe.gov.za/documents/forms>.
3. An electronic copy of the signed declaration form must be appended to all Draft and Final Reports submitted to the department for consideration.
4. The specialist must be aware of and comply with 'the Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the act, when applying for environmental authorisation - GN 320/2020', where applicable.

1. SPECIALIST INFORMATION

Title of Specialist Assessment	Terrestrial
Specialist Company Name	The Biodiversity Company
Specialist Name	Byron Goris
Specialist Identity Number	9904145161083
Specialist Qualifications:	BSc Environmental Science
Professional affiliation/registration:	SACNASP Pending
Physical address:	777 Peridot Street, Jukskei Park
Postal address:	777 Peridot Street, Jukskei Park
Postal address	2188
Telephone	N/A
Cell phone	081 790 8603
E-mail	byron@thebiodiversitycompany.com

SPECIALIST DECLARATION FORM – AUGUST 2023

2. DECLARATION BY THE SPECIALIST

I, Byron Goris declare that –

- I act as the independent specialist in this application;
- I am aware of the procedures and requirements for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act (NEMA), 1998, as amended, when applying for environmental authorisation which were promulgated in Government Notice No. 320 of 20 March 2020 (i.e. "the Protocols") and in Government Notice No. 1150 of 30 October 2020.
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing –
 - any decision to be taken with respect to the application by the competent authority; and;
 - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 48 and is punishable in terms of section 24F of the NEMA Act.



Signature of the Specialist

The Biodiversity Company

Name of Company:

12 Jun 2024

Date

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, Byron Goris, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.



Signature of the Specialist

The Biodiversity Company

Name of Company

12/06/2024

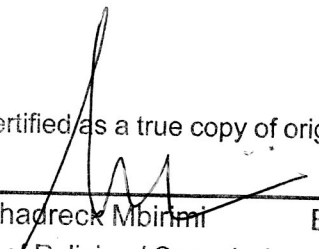
Date

Signature of the Commissioner of Oaths

12 Jun 2024

Date

Certified as a true copy of original



Farai Shadreck Mbirimi BD52805
Minister of Religion / Commissioner of Oaths
391 11th Road, Erand, Midrand 1685

Date 12/06/2024



forestry, fisheries & the environment

Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

Private Bag X447, Pretoria, 0001, Environment House, 473 Steve Biko Road, Pretoria, 0002 Tel: +27 12 399 9000, Fax: +27 86 625 1042

SPECIALIST DECLARATION FORM – AUGUST 2023

Specialist Declaration form for assessments undertaken for application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

REPORT TITLE

Specialist Assessments for the proposed Kelvin Power Station Combined Cycle Gas Turbine Power Plant Project

Kindly note the following:

1. This form must always be used for assessment that are in support of applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting, where this Department is the Competent Authority.
2. This form is current as of August 2023. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.dffe.gov.za/documents/forms>.
3. An electronic copy of the signed declaration form must be appended to all Draft and Final Reports submitted to the department for consideration.
4. The specialist must be aware of and comply with 'the Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the act, when applying for environmental authorisation - GN 320/2020', where applicable.

1. SPECIALIST INFORMATION

Title of Specialist Assessment	Reviewer
Specialist Company Name	The Biodiversity Company
Specialist Name	Andrew Husted
Specialist Identity Number	7904195054081
Specialist Qualifications:	MSc Aquatic Health
Professional affiliation/registration:	SACNASP Pr Sci Nat 400213/11
Physical address:	777 Peridot Str, Jukskei Park
Postal address:	777 Peridot Str, Jukskei Park
Postal address	2188
Telephone	N/A
Cell phone	081 319 1225
E-mail	andrew@thebiodiversitycompany.com

SPECIALIST DECLARATION FORM – AUGUST 2023

2. DECLARATION BY THE SPECIALIST

I, Andrew Husted declare that –

- I act as the independent specialist in this application;
- I am aware of the procedures and requirements for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act (NEMA), 1998, as amended, when applying for environmental authorisation which were promulgated in Government Notice No. 320 of 20 March 2020 (i.e. "the Protocols") and in Government Notice No. 1150 of 30 October 2020.
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing –
 - any decision to be taken with respect to the application by the competent authority; and
 - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 48 and is punishable in terms of section 24F of the NEMA Act.



Signature of the Specialist

The Biodiversity Company

Name of Company:

11 Jun 2024

Date

SPECIALIST DECLARATION FORM – AUGUST 2023

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, Andrew Husted, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.



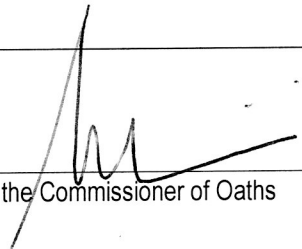
Signature of the Specialist

The Biodiversity Company

Name of Company

11/06/2024

Date



Signature of the Commissioner of Oaths

11 Jun 2024

Date

Certified as a true copy of original

Farai Shadreck Mbirimi BD52805
Minister of Religion / Commissioner of Oaths
391 11th Road, Erand, Midrand 1685

Date 11 / 06 / 2024



herewith certifies that

Andrew Husted

Registration Number: 400213/11

is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)

in the following field(s) of practice (Schedule 1 of the Act)

Aquatic Science (Professional Natural Scientist)
Ecological Science (Professional Natural Scientist)
Environmental Science (Professional Natural Scientist)

Effective **13 July 2011**

Expires **31 March 2025**



A handwritten signature in black ink, appearing to read 'S. Neph'.

Chairperson

A handwritten signature in black ink, appearing to read 'N. S. S. S.'.

Chief Executive Officer

