SCIENTIFIC TERRESTRIAL SERVICES

Terrestrial Biodiversity Assessment

AS PART OF THE ENVIRONMENTAL AUTHORISATION PROCESS FOR THE PROPOSED VORNA VALLEY SPARKS SCHOOL, GAUTENG PROVINCE.

PART C: FAUNAL ASSESSMENT

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Part of the SAS Environmental Group of Companies

DOCUMENT GUIDE

The table below provides a guide to the reporting of biodiversity impacts as they relate to 1) Government Notice No. 320 Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on **Terrestrial Biodiversity** as published in Government Gazette 43110 dated 20 March 2020, and 2) Government Notice No. 1150 Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on **Terrestrial Plant and Animal Species** as published in Government Gazette 43855 dated 30 October 2020.

Theme-Specific Requirements as per Government Notice No. 1150 Animal Biodiversity Theme – Very High and High Sensitivity Rating as per Screening Tool Output		
No.	**SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS**	**The section in report/Notes**
1.	**General Information**	
1.1	An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified by the screening tool as being of "very high" or "high" sensitivity for terrestrial animal species must submit a Terrestrial Animal Species Specialist Assessment Report.	**Part C:** Faunal Assessment
1.2	An applicant intending to undertake an activity identified in the scope of this protocol on a site identified by the screening tool as being of "medium sensitivity" for terrestrial animal species must submit either a Terrestrial Animal Species Specialist Assessment Report or a Terrestrial Animal Species Compliance Statement, depending on the outcome of a site inspection undertaken in accordance with paragraph 4.	**Part C:** Section 3
1.3	The Terrestrial Animal Species Specialist Assessment and the Terrestrial Animal Species Compliance Statement must be undertaken within the study area.	**Part C:** Faunal Assessment
1.4	Where the nature of the activity is expected to have an impact on species of conservation concern beyond boundary of the preferred site, the project areas of influence must be determined by the specialist in accordance with Species Environmental Assessment Guideline, and the study area must include the project areas of influence, as determined.	Not Applicable
2	**Animal Species Specialist Assessment**	
2.1	The assessment must be prepared by a specialist registered with the South African Council for Natural Scientific Professions (SACNASP) within a field of practice relevant to the taxonomic groups ("taxa") for which the assessment is being undertaken.	**Part A – C:** Cover Page **Part A:** Appendix E
2.2	**The assessment must be undertaken in accordance with the Species Environmental Assessment Guideline[1] and must:**	
2.2.1	Identify the Species of Conservation Concern which were found, observed or are likely to occur within the study area;	**Part C**: Section 3 **Part C**: Appendix B & C
2.2.2	Provide evidence (photographs or sound recordings) of each SCC found or observed within the study area, which must be disseminated by the specialist to a recognized online database facility, immediately after the site inspection has been performed (prior to preparing the report contemplated in paragraph 3);	**Part C:** Section 3
2.2.3	Identify the distribution, location, viability[2] and detailed description of population size of the Species of Conservation Concern identified within the study area;	**Part C**: Section 3 **Part C**: Appendix B & C
2.2.4	Identify the nature and the extent of the potential impact of the proposed development on the population of the Species of Conservation Concern located within the study area;	**Part C:** Section 5
2.2.5	Determine the importance of the conservation of the population of the Species of Conservation Concern identified within the study area, based on information available in national and international databases including the IUCN Red List of	**Part C**: Section 3 & 5 **Part C**: Appendix B

[1] Available at https://bgis.sanbi.org/
[2] the ability to survive and reproduce in the long term

	Threatened Species, South African Red List of Species, and/or other relevant databases;	
2.2.6	Determine the potential impact of the proposed development on the habitat of the Species of Conservation Concern located within the study area;	**Part C:** Section 5
2.2.7	Include a review of relevant literature on the population size of the Species of Conservation Concern, the conservation interventions as well as any national or provincial species management plans for the Species of Conservation Concern. This review must provide information on the need to conserve the Species of Conservation Concern and indicate whether the development is compliant with the applicable species management plans and if not, a motivation for the deviation;	**Part C**: Section 3 **Part C**: Appendix B
2.2.8	Identify any dynamic ecological processes occurring within the broader landscape, that might be disrupted by the development and result in negative impact on the identified Species of Conservation Concern, for example, fires in fire-prone systems;	**Part C:** Section 5
2.2.9	Identify any potential impact on ecological connectivity within the broader landscape, and resulting impacts on the identified Species of Conservation Concern and its long term viability;	**Part C:** Section 5
2.2.10	Determine buffer distances as per the Species Environmental Assessment Guidelines used for the population of each Species of Conservation Concern	**Part C**: Section 3 **Part C**: Appendix B
2.2.11	Discuss the presence or likelihood of additional SCC including threatened species not identified by the screening tool, Data Deficient or Near Threatened Species, as well as any undescribed species; or roosting and breeding or foraging areas used by migratory species where these species show significant congregations, occurring in the vicinity.	**Part C:** Section 5
2.2.12	Identify any alternative development footprints within the preferred development site which would be of "low" sensitivity" or "medium" sensitivity as identified by the screening tool and verified through the site sensitivity verification	**Part C:** Section 4
2.3	The findings of the assessment must be written up in a Terrestrial Animal Species Specialist Assessment Report.	**Part C:** Section 5
3.	**Animal Species Specialist Assessment Report. This report must include as a minimum the following information:**	
3.1.1	Contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the assessment including a curriculum vitae;	**Part A:** Appendix E
3.1.2	A signed statement of independence by the specialist;	**Part A:** Appendix E
3.1.3	A statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	**Part C:** Section 3
3.1.4	A description of the methodology used to undertake the site sensitivity verification and impact assessment and site inspection, including equipment and modelling used where relevant;	**Part C:** Appendix A
3.1.5	A description of the mean density of observations/number of sample sites per unit area and the site inspection observations;	Not applicable to this report
3.1.6	A description of the assumptions made and any uncertainties or gaps in knowledge or data	**Part C:** Section 1
3.1.7	Details of all Species of Conservation Concern found or suspected to occur on site, ensuring sensitive species are appropriately reported;	**Part C:** Section 3 **Part C:** Appendix B
3.1.8	The online database name, hyperlink and record accession numbers for disseminated evidence of Species of Conservation Concern found within the study area	**Part C:** Section 3 **Part C:** Appendix B
3.1.9	The location of areas not suitable for development and to be avoided during construction where relevant;	**Part C:** Section 4
3.1.10	A discussion on the cumulative impacts;	**Part C:** Section 5
3.1.11	Impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr)	**Part C:** Section 5
3.1.12	A reasoned opinion, based on the findings of the specialist assessment, regarding the acceptability or not, of the development related to the specific theme considered, and if the development should receive approval or not,	Executive summary **Part C:** Section 6

	related to the specific theme being considered, and any conditions to which the opinion is subjected if relevant.	
3.1.13	A motivation must be provided if there were any development footprints identified as per paragraph 2.3.12 above that were identified as having "low" or "medium" terrestrial animal species sensitivity and were not considered appropriate.	**Part C:** Section 1
3.2	A signed copy of the assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.	**Part A**: Appendix E
4	**Medium Sensitivity Species of Conservation Concern Confirmation**	
4.1	Medium sensitivity data represents suspected habitat for SCC based on occurrence records for these species collected prior to 2002 or is based on habitat suitability modelling.	**Part C:** Section 3
4.2	The presence or likely presence of the Species of Conservation Concern identified by the screening tool, must be confirmed through a site inspection by a specialist registered with the South African Council for Natural Scientific Professions in a field of practice relevant to the taxonomic group ("taxa") for which the assessment is being undertaken.	**Part C:** Section 3 **Part C:** Appendix B
4.3	The assessment must be undertaken within the study area.	**Part C:** Section 1
4.4	The site inspection to determine the presence or likely presence of Species of Conservation Concern must be undertaken in accordance with the Species Environmental Assessment Guideline.	**Part C:** Section 2
4.5	The site inspection is to confirm the presence, likely presence or confirmed absence of a Species of Conservation Concern within the site identified as "medium" sensitivity by the screening tool.	**Part C:** Appendix B
4.6	Where Species of Conservation Concern are found on site or have been confirmed to be likely present, a Terrestrial Animal Species Specialist Assessment must be submitted in accordance with the requirements specified for "very high" and "high" sensitivity in this protocol.	**Part C:** Section 3 **Part C:** Appendix B
4.7	Conversely, where no Species of Conservation Concern are found on site during the investigation or if the presence is confirmed to be unlikely, a Terrestrial Animal Species Compliance Statement must be submitted.	Not applicable to this report

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ACRONYMS

AIP/AIPs	Alien Invasive Plant/Alien Invasive Plants
BGIS	Biodiversity Geographic Information Systems
CR	Critically Endangered
DFFE	Department of Forestry, Fisheries and the Environment
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIS	Ecological Importance and Sensitivity
EN	Endangered
GDARD	Gauteng Department of Agriculture and Rural Development
GIS	Geographic Information System
GPS	Global Positioning System
Ha	Hectares
IBA	Important Bird Area
IEM	Integrated Environmental Management
IIE	Independent Institute of Education (Pty) Ltd
IUCN	International Union for Conservation of Nature and Natural Resources
km	Kilometres
LC	Least Concern
NA	Not Applicable
NBA	National Biodiversity Assessment
NT	Near Threatened
NEMBA	National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004)
NYBA	Not yet been assessed
m	Metres
P	Protected, according to the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004): Amendment of Critically Endangered, Endangered, Vulnerable and Protected Species List. December 2007
PES	Present Ecological State
POC	Probability of Occurrence
QDS	Quarter Degree Square
RDL	Red Data Listed
RE	Regionally Extinct
SABAP	Southern African Bird Atlas Project
SANBI	South Africa National Biodiversity Institute
SP	Specially Protected
STS	Scientific Terrestrial Services
SCC	Species of Conservation Concern
TOPS	Threatened Or Protected Species (list of 2007) according to the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004):
VU	Vulnerable

GLOSSARY OF TERMS

Alien and Invasive species	A species that is not an indigenous species; or an indigenous species translocated or intended to be translocated to a place outside its natural distribution range in nature, but not an indigenous species that has extended its natural distribution range by natural means of migration or dispersal without human intervention.
Aestivate (Aestivation)	A prolonged state of torpor or dormancy in insects, fish, or amphibians during hot or dry conditions, helping reduce metabolic activity and conserve water.
Brumate (Brumation)	A state of dormancy in cold-blooded animals, such as reptiles and amphibians, during cold or dry conditions. During brumation, metabolism slows, but the animal may periodically wake to drink or move. This differs from true hibernation in mammals, which involves continuous, deep sleep.
Carrying Capacity	The maximum population size of a biological species that can be sustained by that specific environment, given the food, habitat, water, and other resources available.
CBA (Critical Biodiversity Area)	A CBA is an area considered important for the survival of threatened species and includes valuable ecosystems such as wetlands, untransformed vegetation and ridges.
Diversity	Abundance and species richness of faunal classes
Endangered (according to IUCN)	Organisms at very high risk of extinction in the wild
Endemic species	Species that are only found within a pre-defined area. There can therefore be sub-continental (e.g., southern Africa), national (South Africa), provincial, regional or even within a particular mountain range.
ESA (Ecological Support Area)	An ESA provides connectivity and important ecological processes between CBAs and is therefore important in terms of habitat conservation.
Faunal Class	In biological classification, class (Latin: classis) is a taxonomic rank, as well as a taxonomic unit. Class specifically refers to major groups, namely: mammals, avifauna (birds), reptiles and invertebrates.
Habitat Integrity (ecological)	The integrity of an ecosystem refers to its functional completeness, including its components (species) its patterns (distribution) and its processes.
Least Concern	Unlikely to become extinct in the near future. A least-concern species is a species that has been categorized by the International Union for Conservation of Nature (IUCN) as evaluated as not being a focus of species conservation. They do not qualify as threatened, near threatened, or (before 2001) conservation dependent.
Least Threatened	Least threatened ecosystems are still largely intact.
Near Threatened (according to IUCN)	Close to being at high risk of extinction in the near future.
Protected	Species of high conservation value or national importance that require protection, according to TOPS 2007 and NEMBA.
RDL (Red Data listed) species	Organisms that fall into the Extinct in the Wild (EW), critically endangered (CR), Endangered (EN), Vulnerable (VU) categories of ecological status.
SCC (Species of Conservation Concern)	The term SCC in the context of this report refers to all RDL (Red Data) and IUCN (International Union for the Conservation of Nature) listed threatened species as well as protected species of relevance to the project.
Trophic (ecological)	Refers to feeding and nutrition.
Rank Grassland Vegetation	Grassland or marsh vegetation that has grown abundantly without being cut or grazed for some time, and as a result has become tall, tussocky, and dominated by coarse species of grass.
Vulnerable (according to IUCN)	Species meets one of the 5 red list criteria and thus considered to be at high risk of unnatural (human-caused) extinction without further human intervention.

1 INTRODUCTION

1.1 Background

Scientific Terrestrial Services (Pty) Ltd. (hereafter “STS”) was appointed to conduct a terrestrial biodiversity impact assessment as part of the Environmental Authorisation (EA) application process for the proposed Vorna Valley Sparks School Development in the Carlswald suburb of Midrand, Gauteng Province. The proposed development is located on the TLC stables property, henceforth referred to as the “**study area**”. The study area is within an urban landscape where much of the land has been developed into residential properties. The M39 is located 200 metres (m) to the south of the study area, and the R55 700 m to the west. Kyalami Estate is located to the north and Vorna Valley and Kyalami Hills to the southeast of the study area. The M39 metropolitan route is approximately 377 meters (m) south of the study area, and the R55 provincial route is approximately 1 kilometre (km) west. The location, extent, and proposed school development layout are depicted in Figures 1 and 2 below.

The purpose of this report is to define the faunal ecology of the study area, to identify areas of increased Ecological Importance and Sensitivity (EIS), as well as the mapping of such areas, and to describe the Present Ecological State (PES) of the study area. The primary objective of the faunal assessment is not to compile an exhaustive species list but rather to ensure that sufficient data are collected to describe all the faunal classes present in the area of interest, to optimise the detection of species of conservation concern (SCC) and to assess habitat suitability for other potentially occurring SCC (SANBI, 2020).

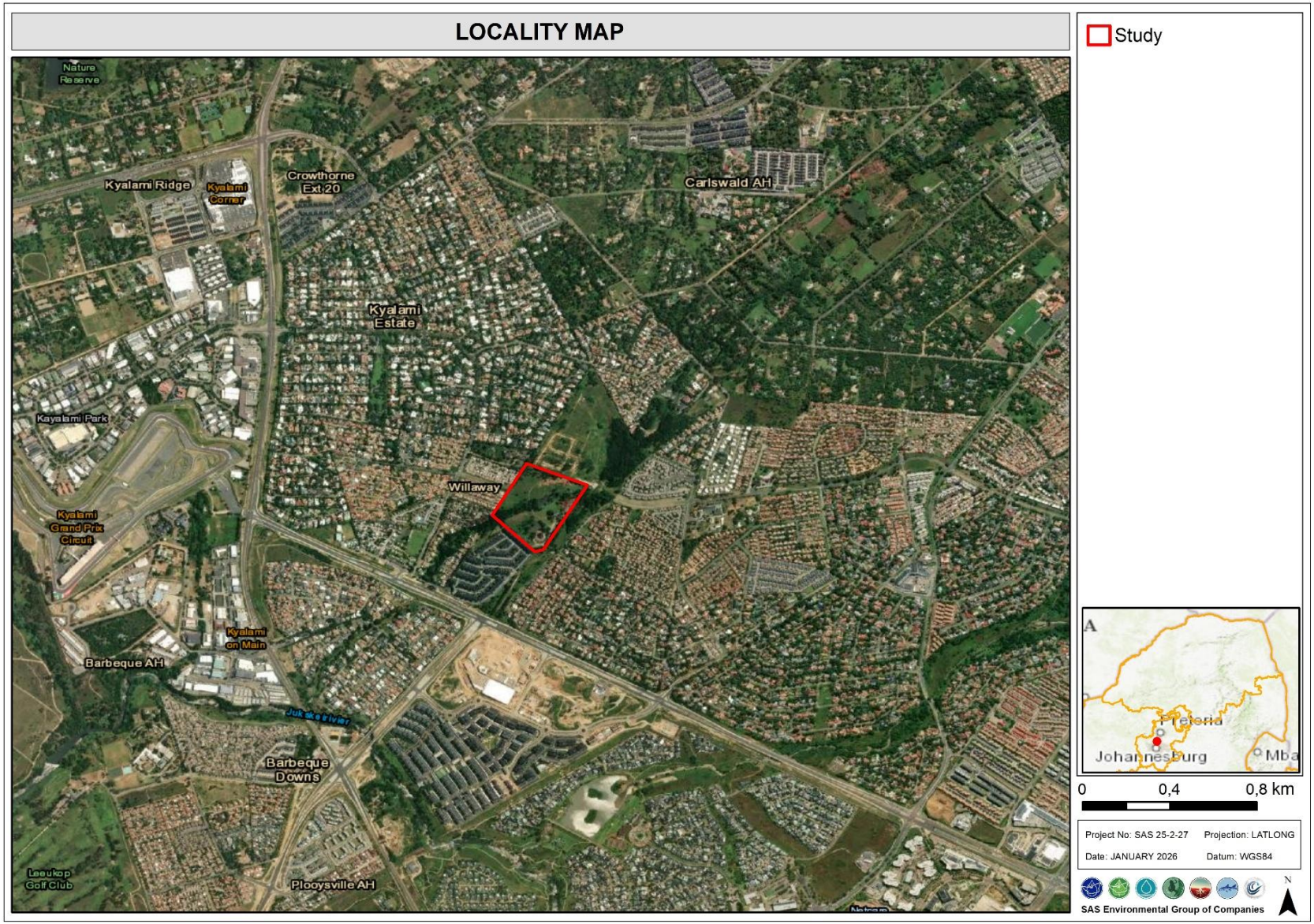

Figure 1: Digital satellite image depicting the locality of the study area and focus area.

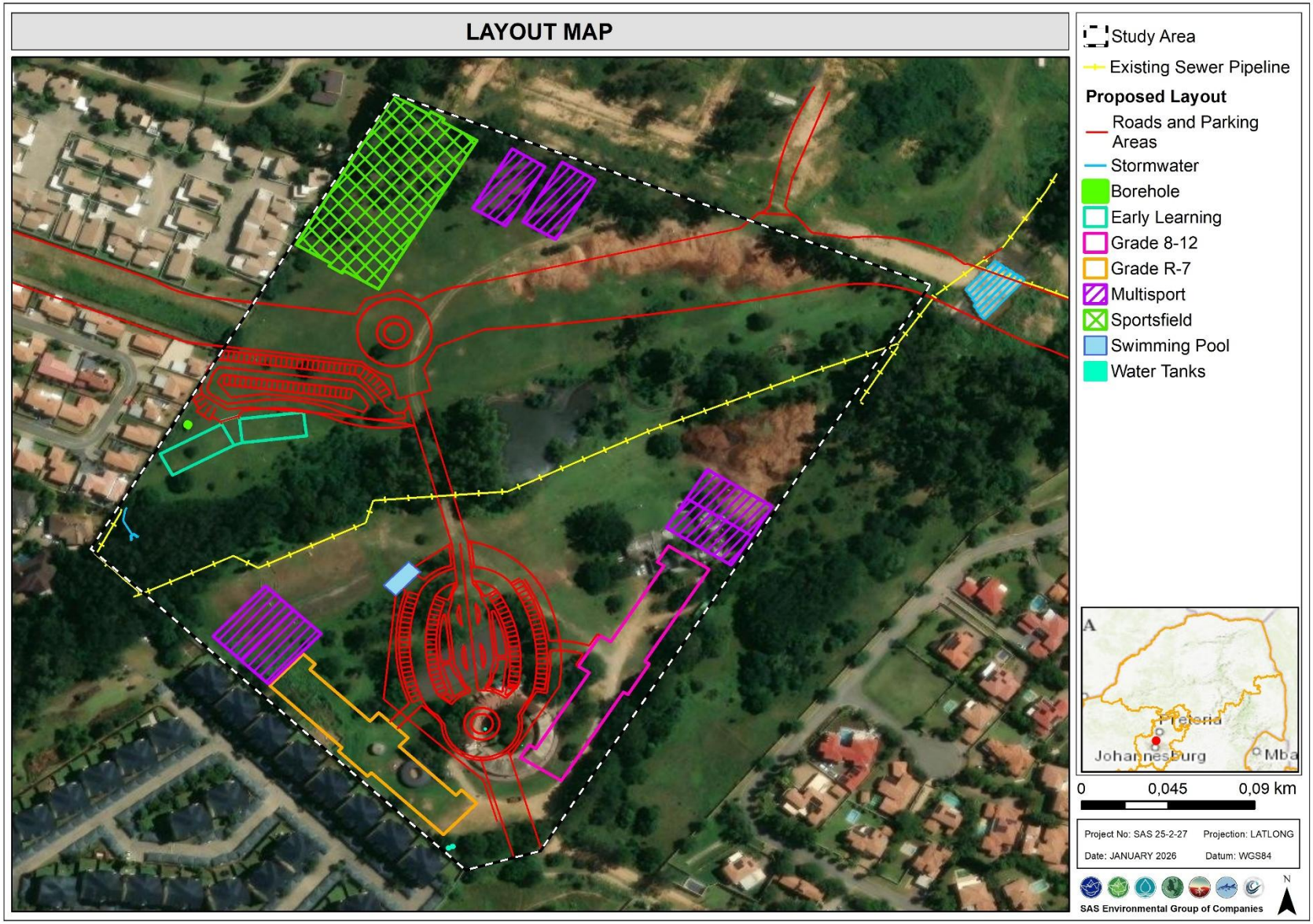

Figure 2: The proposed layout of the development as provided by the proponent.

1.2 Reporting Protocol

The site verification and field assessment confirmed the medium animal species theme sensitivity (as identified by the Department of Forestry, Fisheries, and the Environment's (DFFE) National Web-based Screening Tool (hereafter referred to as the "screening tool")) in certain portions of the study area. In other areas, the high sensitivity rating was disputed, and a medium sensitivity was considered to be more appropriate. Additionally, in some sections, both the medium and high sensitivity ratings were disputed and assigned a low sensitivity due to the absence of suitable habitat for faunal SCC. As such, the reporting protocol for the animal species theme follows the protocol for the medium sensitivity theme and a full Animal Species Specialist Assessment must be undertaken (refer to the document guide in this report).

For refined, ground-truthed / field-verified habitat sensitivities, please refer to the site ecological importance (SEI) breakdown in Section 4 of this report.

1.3 Scope of Work

The purpose of this report is to define the faunal ecology of the proposed development as well as mapping and defining areas of increased EIS and to define the PES of the study area. The scope of work for this study is:

- To provide inventories of faunal species as encountered within the study area;
- To determine and describe habitat types, faunal communities and the ecological state of the sites associated with the study area and to rank each habitat type based on conservation importance and ecological sensitivity;
- To identify and consider all sensitive landscapes and/ or any other special habitat features;
- To conduct a Red Data Listed (RDL) and SCC assessment, including species as listed in the National Environmental Management: Biodiversity Act, 2004 (Act No.10 of 2004) (NEMBA) Threatened or Protected Species (TOPS) list (Government Notice R152 in Government Gazette 29657, dated 23 February 2007, as amended), the Endangered Wildlife Trust (EWT) Red List of Species (2021), the SANBI South African Red List of Species, the International Union for Conservation of Nature (IUCN) threatened species, the Gauteng Conservation Plan (V4.0, 2024), and the overall potential for such species to occur within the areas associated with the study area;
- To verify the DFFE's national environmental screening report for the animal theme (screening tool) for the study area;
- To provide detailed information to guide the activities associated with the proposed development within the study area; and

- To ensure the ongoing functioning of the ecosystem in such a way as to support local and regional conservation requirements and the provision of ecological services in the local area.

1.4 Assumptions and Limitations

The following assumptions and limitations are applicable to this report:

- The faunal assessment is confined to the study area and does not include the neighbouring and adjacent properties. These were, however, considered as part of the desktop assessment;
- With ecology being dynamic and complex, some aspects (some of which may be important) may have been overlooked. It is, however, expected that most faunal communities have been accurately assessed and as such the information provided herein is considered sufficient to allow informed decision making to take place and facilitate integrated environmental management;
- Due to the nature, habits and mobility of most faunal taxa, it is unlikely that all species would have been observed during the field assessment. Therefore, site observations were compared with literature studies, where necessary;
- A field assessment was conducted during winter (June 2025), to determine the faunal ecological status of the study area, and to “ground-truth” the results of the desktop assessment (presented in Part A). A more accurate assessment would require that assessments take place in all seasons of the year, especially in early to mid-summer. However, on-site data was augmented with all available desktop data and specialist experience in the area, and the findings of this assessment are considered to be an accurate reflection of the ecological characteristics of the study area;
- Sampling by its nature, means that not all individuals are assessed and identified. Some species and taxa within the footprint area may therefore have been missed during the assessment. However, this is not considered a significant limitation or fatal flaw, as such constraints are inherent to ecological fieldwork. Nevertheless, for more accurate and complete data collection, summer assessments are considered more reliable; and
- For the faunal SCC assessment, the most recent *Regional Red Data Book of Birds of South Africa, Lesotho, and Eswatini* (Lee *et al.*, 2025) was consulted. However, as this publication is not yet reflected in the South Africa National Biodiversity Institute (SANBI) database, the precautionary principle was applied, and the highest conservation status from either source was used in this report.

1.5 Indemnity and Terms of use of this Report

The findings, results, observations, conclusions, and recommendations presented in this report are based on available information and the author's best scientific and professional knowledge. The report is based on survey and assessment techniques that are limited by budgetary constraints relevant to the type and level of investigation undertaken and STS and its staff reserve the right to, at their sole discretion, modify aspects of the report, including the recommendations, if and when new information may become available resulting from ongoing research, or further work in this field pertaining to this investigation.

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2 ASSESSMENT APPROACH

The field assessment was undertaken on the 19th of June 2025 (winter season), to determine the faunal ecological status of the study area. A reconnaissance 'walkabout' was used to determine the general habitat types found throughout the study area, following this, specific study sites were selected that were considered to be representative of the habitats found within the study area, with special emphasis being placed on areas that may potentially support faunal SCC. Sites were investigated on foot in order to identify the occurrence of fauna within the study area.

A detailed explanation of the method of assessment is provided in Appendix A of this report. The faunal categories covered in this assessment are mammals, avifauna, herpetofauna, and general invertebrates. For the methodologies relating to the impact assessment and development of the mitigation measures, please refer to Appendix C of Part A of the study.

2.1 General Approach

To accurately determine the PES of the study area and capture comprehensive data with respect to faunal taxa, the following methodology was applied:

- Maps and digital satellite images were consulted prior to the field assessment to determine broad habitats, vegetation types and potentially sensitive sites. An initial visual on-site assessment of the study area was undertaken to confirm the assumptions made during inspection of the digital satellite imagery;
- A literature review with respect to habitats, vegetation types and species distribution was conducted considering the larger study area. For a detailed description of the vegetation types and habitats associated with the study area, please refer to the associated Terrestrial and Plant Species Report (Part B);
- Relevant databases considered during the assessment of the study area included online verified research grade species records from iNaturalist; The Endangered Wildlife Trust (EWT) Red List of Species (2021), the SANBI South African Red List of Species, Important Bird and Biodiversity Areas (IBA, 2015), South African Bird Atlas Project 2 (SABAP2), International Union for Conservation of Nature (IUCN), the Screening Tool (2025) and the National Biodiversity Assessment (NBA, 2018);
- Specific methodologies for the assessment, in terms of field work and data analysis of faunal ecological assemblages, are presented in Appendix A of this report; and
- For the methodologies relating to the impact assessment and development of the mitigatory measures, please refer to Part A: Appendix C.

2.2 Sensitivity Mapping

All the ecological features associated with the study area were considered, and sensitive areas were delineated using a Global Positioning System (GPS). A Geographic Information System (GIS) was used to project these features onto satellite imagery. The various habitat types were assigned SEI categories based on their ecological integrity, conservation value, the presence of SCC and their ecosystem processes. Refer to Part A Appendix D for the breakdown of the methodology used to determine SEI and sensitivity.

2.3 Faunal Species of Conservation Concern Assessment

According to the SANBI Species Environmental Assessment Guidelines, faunal SCC are defined as any species that are threatened, range-restricted, or of particular ecological, cultural, or conservation significance, and which may be especially vulnerable to habitat loss, disturbance, or other anthropogenic pressures. SCC include taxa listed as threatened in terms

of the IUCN Red List categories (Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT) or Data Deficient (DD)), species protected under national or provincial legislation, species that are rare or locally endemic with limited distributions, and those identified as requiring specific conservation attention due to declining populations or specialised habitat requirements.

Certain invertebrate taxa, including scorpion and spider species, as well as reptile, amphibian and mammal species, may be listed as protected under the TOPS regulations without being regarded as SCC in terms of the SANBI Species Environmental Assessment Guidelines. This distinction arises because many of these species are relatively widespread, occur across a broad range of habitats, and are not experiencing significant population declines or severe habitat fragmentation. Their protected status is therefore precautionary and largely intended to regulate collection, trade, and handling rather than to address an immediate conservation threat. While compliance with TOPS permitting requirements may be necessary when these species are encountered during development, they are not typically considered threatened; however, they remain classified as protected species and are therefore, as a precautionary principle, included in the SCC assessment.

During field assessments, it is not always feasible to identify or observe all species within an area. This is largely due to the secretive nature of many faunal species, possible low population numbers, or varying habits of species. As such, and to specifically assess an area for faunal SCC, a Probability of Occurrence (POC) estimation is used, considering several factors to determine the probability of faunal SCC occurrence within the study area. Species listed in Appendix B whose known distribution ranges and habitat preferences include the proposed infrastructure development site were taken into consideration. Faunal species likely to occur within the study area are indicated and briefly discussed within each of the relevant dashboards in section 3, along with their POC.

3 FAUNAL ASSESSMENT RESULTS

3.1 Sampling Effort

The site was surveyed on foot by means of extended transects (meanders) through the study area, where species were surveyed and habitat conditions noted; meanders were positioned within the various habitat types to ensure an adequate representation of faunal species from different classes (mammals, reptiles, amphibians, avifauna and invertebrates). Sherman and camera traps were used to increase the likelihood of capturing and observing mammal species, notably nocturnal and reclusive mammals. Figure 3 presents the specialist's GPS tracks in relation to the study area as an indication of the area covered.

Figure 3: The study area (red outline) and the recorded GPS tracks of the specialist (blue lines) from the field assessment.

3.2 Existing Impacts

The study area is situated within an urban landscape, where habitat connectivity has been adversely affected by ongoing urban expansion and associated development in the surrounding region. This has constrained the movement of fauna, particularly between the study area and neighbouring natural habitats, thereby negatively influencing both species diversity and abundance. Historically, the area has been subject to livestock grazing (e.g., pastures for horses) and disturbance from the development of a watercourse crossing using culverts. Ongoing impacts include continued grazing by livestock and potential disturbances or predation by domestic dogs and cats. Consequently, the study area is also subject to secondary pressures, such as the proliferation of alien and invasive plant (AIP) species, alterations to natural fire regimes, and increased habitat fragmentation. These factors all contribute to the degradation of the habitat found within.

3.3 Faunal Habitat

During the 2025 field assessment, three broad terrestrial habitat units were identified and assessed within the study area. These habitat units and their subunits are listed and briefly discussed below in terms of their condition and relevance from a faunal perspective. The field survey focused specifically on terrestrial habitats associated with the study area.

1) **Secondary Grassland (1.11 ha)** – This habitat unit comprises predominantly tall to short grassland that has historically been subjected to livestock (horse) grazing and the proliferation of AIPs. These impacts have resulted in a largely homogeneous grass layer with limited forb diversity. Current negative impacts include continued AIP spread, grazing, edge effects from surrounding developments, and potential disturbance and predation by domestic cats and dogs. As a result, faunal diversity and abundance are expected to be limited due to anthropogenic disturbance and the uniform vegetation structure;
2) **Modified Habitat (6.27 ha)** – Anthropogenic activities have altered these areas through the establishment of infrastructure, ornamental lawns, and gardens, such that they no longer resemble natural grassland. Faunal species tolerant of disturbance and human-modified environments may occur within this habitat. The area does not provide unique habitat features, is unlikely to support faunal SCC, and is not considered to be of significant conservation value. Therefore, from an ecological perspective, this habitat is considered to be of low importance; and

3) **Freshwater Habitat (1.23 ha)** - This habitat unit includes four hydrogeomorphic units (HGMs): (1) a Dam Complex, (2) a Channelled Valley Bottom (CVB) Wetland, (3) a Hillslope Seep (HSS) Wetland, and (4) a Tributary of the Jukskei River, (as defined by the Freshwater Assessment (SAS 25-0085, 2026)). Despite this difference, the HGMs share similar vegetation composition and structure. Although edge effects such as AIP proliferation and grazing impact the area, it still performs important ecological functions. Its open water availability and elevated moisture levels attract species dependent on moist or aquatic environments, including amphibians, aquatic invertebrates and water-dependent birds. As a result, this habitat supports unique foraging opportunities for amphibians and invertebrates. It also provides roosting habitat for avifaunal species.

For a more comprehensive explanation of the floral communities, habitat characteristics and conservation sensitivities associated with the above-mentioned habitat units, please refer to the Floral Report (Part B). Figure 4 below provides a visual representation of the above-mentioned habitat units in the study area and Figure 5 overlays the proposed development layout on these habitat units. Sections 3.4 - 3.7 provide dashboards of the findings of each faunal class.

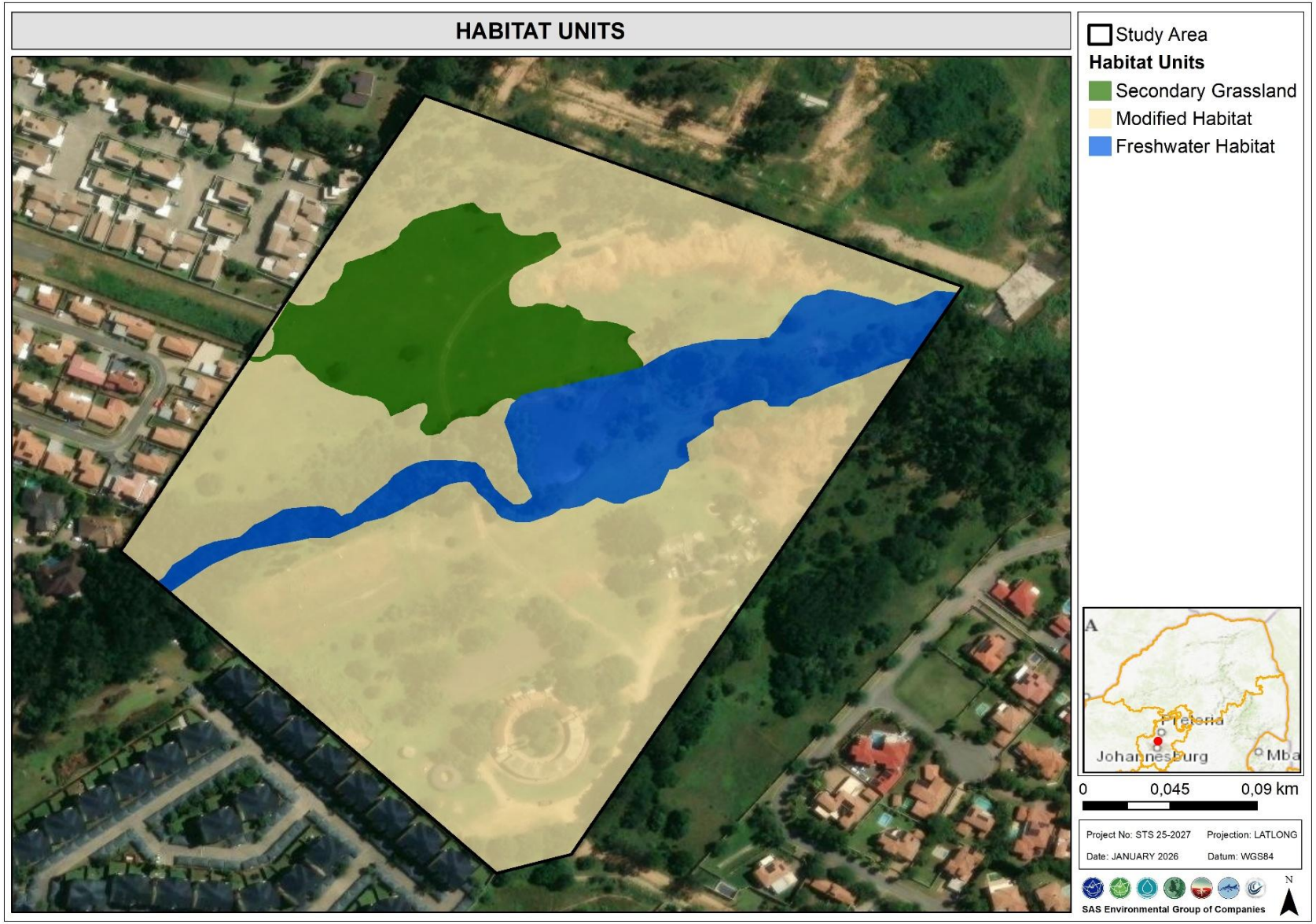


Figure 4: Habitat units associated with the study area.

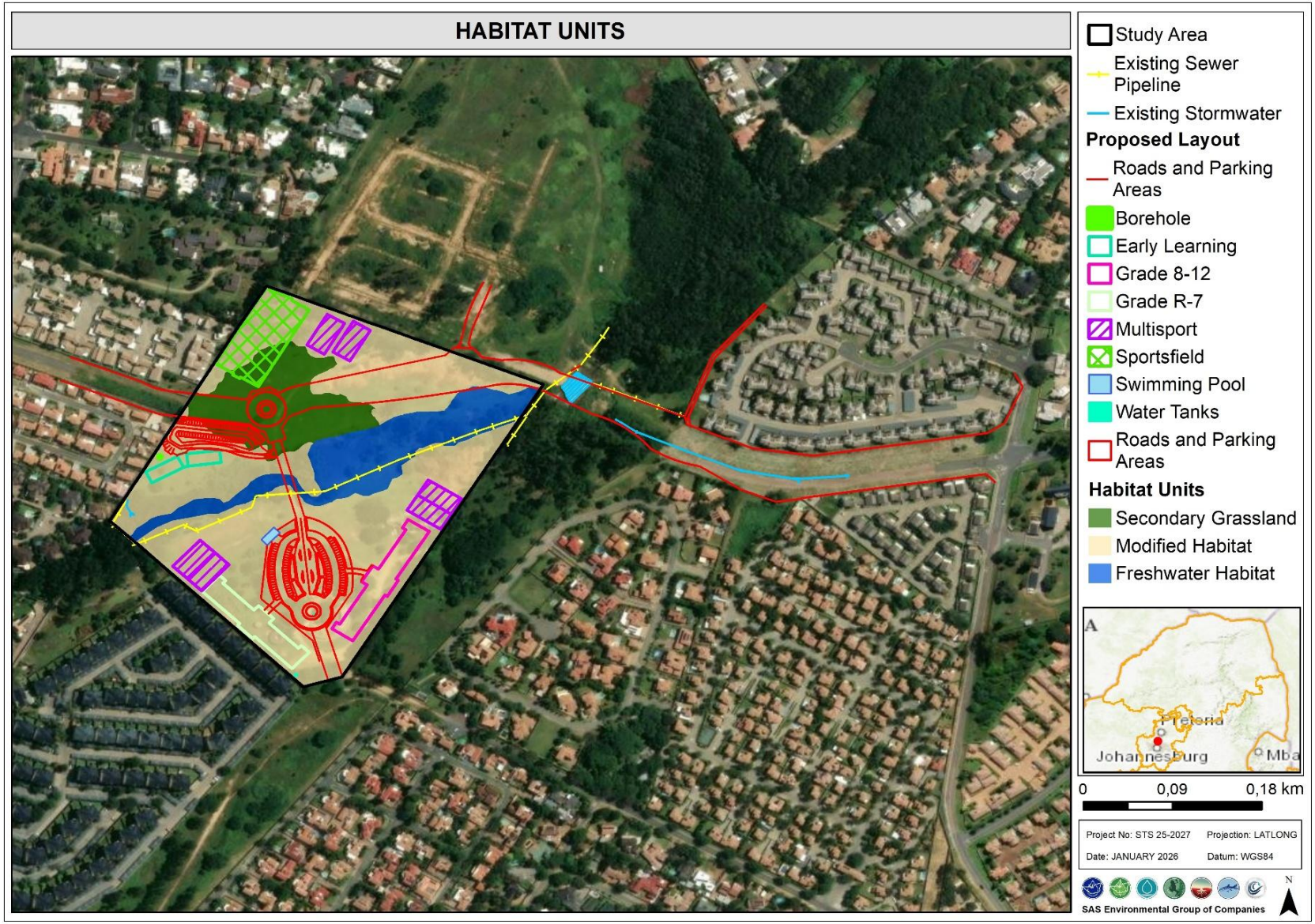
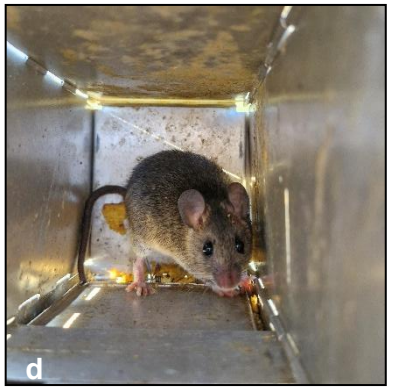


Figure 5: Habitat units associated with the study area overlaid with the proposed school development layout.

3.4 Mammals

Table 1: Field assessment results pertaining to mammal species within the study area.

Photographs
   
a.) *Sylvicapra grimmia* (Common Duiker LC) observed on a camera trap in the study area; b.) Domestic dogs moving through the study area; c) Domestic horses moving through the study area; d.) *Rattus rattus* (Black Rat, LC) caught in a Sherman trap.

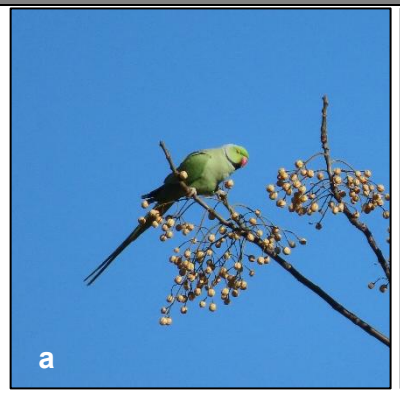
Mammal SCC			
Species	**Habitat Resources in the Site**	**RDL Status**	**POC**
Atelerix frontalis (Southern African Hedgehog)	This species utilises a range of vegetation types. Its diet primarily consists of insects, but also includes reptiles, carrion, fungi, and bird eggs. This species may potentially be found in the Secondary Grassland Habitat. Although suitable habitat is present and the species has been recorded in the surrounding area, a medium POC is assigned as disturbance from domestic dogs is likely to limit habitat use, with only occasional individuals or low numbers are expected to pass through the area rather than establish regular occupancy.	NT	Medium
Crocidura maquassiensis (Makwassie Musk Shrew)	This species, unique to South Africa, Swaziland, and Zimbabwe, inhabits moist grassland habitats within the savannah and grassland biomes and is typically found in association with intact wetlands. Although, this species has been recorded in the surrounding region there is a lack of suitable habitat in the study area due to regular disturbance resulting in a low POC.	VU	Low
Crocidura mariquensis (Swamp Musk Shrew)	This species exhibits highly specific habitat preferences, being confined to areas in close proximity to open water that support intact riverine and semi-aquatic vegetation, such as reedbeds, wetlands, and dense grasses along riverbanks. It occupies both wet substrates and drier grasslands situated further from the water's edge. The species is frequently recorded in waterlogged environments, including inundated grasslands and vleis. Although, this species has been recorded in the surrounding region there is a lack of suitable habitat in the study area due to regular disturbance resulting in a low POC.	NT	Low

Dasymys robertsii (Robert's Shaggy Rat)	This species depends on undisturbed wetlands as its primary habitat, typically found in reed beds, semi-aquatic grasses, swampy areas, and along riverbanks and streams. It also thrives in grassy regions near water sources. Its omnivorous diet consists of stems, fruiting heads of semi-aquatic grasses, and insects. Due to the lack of suitable habitat this species is considered to have a low POC.	VU	Low
Hydrictis maculicollis (Spotted-necked Otter)	This species primarily inhabits undisturbed and unpolluted freshwater systems, with a preference for shallow waters surrounded by dense reed beds, which provide an ideal environment for their preferred prey, such as crabs and fish. They require dense vegetation near water for breeding and shelter. On land, these otters seek refuge in underground burrows, beneath rocks, roots, or within thick vegetation. Although the study area lies within the broader distribution range of the species and previous records occur in the region, the POC within the Freshwater Habitat is considered low due to limited habitat suitability and the isolated nature of the remaining wetland features within the urban landscape.	VU	Low
Aonyx capensis (Cape Clawless Otter)	Cape Clawless Otters are predominantly aquatic, dwelling in the vicinity of perennial and episodic springs, rivers or dams. They exhibit a preference for shallow waters adorned with dense reed beds, providing an ideal habitat for their favoured prey which include crabs and fish. When on land, these otters seek refuge in underground burrows, beneath rocks, roots, or within thick vegetation. Although the study area falls within the species' broader distribution range and historical records exist for the region, the POC within the Freshwater Habitat is considered low due to the limited availability of suitable habitat and too much disturbance from domestic dogs and increased human activity.	NT	Low
Leptailurus serval (Serval)	Servals are primarily found in marshes, well-watered savannahs, and areas with tall grass. They exhibit a particular affinity for reed-beds and other riparian vegetation. Key vegetation types for servals include wetlands, grasslands (preferably with long, dense grass), and indigenous vegetation that provides cover and supports dispersal. Marginally suitable habitat is present in the Freshwater Habitat and the species has been recorded in the surrounding area. However, due to high anthropogenic disturbance and the presence of domestic dogs a low POC is assigned.	NT	Low
Chrysospalax villosus (Rough-Haired Golden Mole)	This species is typically associated with sandy soils within grasslands, meadows, and the peripheries of marshes in the Savanna and Grassland biomes of South Africa. It has also been documented in anthropogenic habitats such as gardens and parklands, and is known to occur in dense stands of kikuyu grass (*Cenchrus clandestinus*) as well as, to a lesser extent, on golf courses adjacent to natural grassland areas. Due to the presence of suitable habitat and sandy soils for this species in the Secondary Grassland and the Grass Lawns in the Modified Habitat, it is designated a medium POC.	VU	Medium
Mystromys albicaudatus (White-tailed Rat)	The habitat requirements and ecology of White-tailed Rats warrant further investigation. These rats are typically associated with calcrete soils in grassland habitats and are never found in soft, sandy substrates, rocks, wetlands, or along riverbanks. Additionally, records from the Free State Province and Borakalalo Nature Reserve in the North-West Province indicate that they can occur in disturbed areas (such as heavily grazed sites) and in sparse grasslands. Due to the presence of sandy soils within the Secondary Grassland in the study area, a low POC is assigned.	VU	Low

Mammal Discussion
The study area is anticipated to support a limited diversity of mammalian species, primarily due to reduced habitat connectivity and ongoing anthropogenic pressures both within and surrounding the site. The area is enclosed on all sides by urban development, with no remaining connectivity to natural habitats. Additionally, elevated levels of human activity, the grazing of livestock (e.g., pastures for horses), and the presence of domestic dogs further constrain mammalian diversity and abundance. The mammalian assemblage in the study area is most likely to primarily consist of smaller-bodied species that are able to adapt to frequent disturbance. The presence of the Freshwater Habitat and denser grasses in the Secondary Grassland may provide some refuge and foraging opportunities for smaller-bodied species that can dwell in such environments. These small mammals play a vital ecological role by serving as prey for higher trophic level species, including raptors and snakes. Some of these species include: *Cryptomys hottentotus* (Common Molerat, LC), *Rattus rattus* (Black Rat, LC), and *Lepus saxatilis* (Scrub Hare). The degraded condition and high levels of disturbance within the study area limit its capacity to support a diverse assemblage of mammalian SCC, although occasional or transient individuals may still occur. No mammalian SCC were confirmed during the assessment; however, two species are assigned a medium POC based on overlapping distribution ranges and the presence of potentially suitable, albeit sub-optimal, habitat. Overall, the ecological functionality of the study area has been compromised due to diminished habitat connectivity, which has adversely impacted the long-term viability of local mammalian communities. Historic land transformation from grazing and infrastructure development, in combination with continued anthropogenic disturbance, has significantly reduced the capacity of the site for supporting a diverse and robust assemblage of mammals, particularly larger species that are more sensitive to habitat fragmentation and movement barriers.

3.5 Avifauna

Table 2: Field assessment results pertaining to avifaunal species within the study area.

Photographs
   
a.) ***Psittacula krameri*** (Rose-ringed Parakeet, LC); b.) ***Vanellus senegallus*** (African Wattled Lapwing, LC); c.) ***Pycnonotus tricolor*** (Dark-capped Bulbul, LC) d.) ***Lanius collaris*** (Southern Fiscal, LC).
   
e.) ***Numida meleagris*** (Helmeted Guineafowl, LC); f.) ***Alopochen aegyptiaca*** (Egyptian Goose, LC); g.) ***Amblyospiza albifrons*** (Thick-billed Weaver, LC) and h.) ***Acridotheres tristis*** (Common Myna, LC).

Avifaunal SCC							
Species	**Habitat and Resources in the Sites**	**Status**	**POC**	**Species**	**Habitat and Resources in the Sites**	**Status**	**POC**
Scopus umbretta (Hamerkop)	This species is widely distributed across sub-Saharan African where it is associated with many aquatic habitats including estuarine, rivers, ponds, lakesides and irrigation systems and even occasionally recorded along rocky shorelines. They mostly feed on amphibians, both adults and tadpoles and are also known to take small fish and invertebrates. This species has records in the surrounding region on iNaturalist and SABAP2 pentads and there is suitable habitat in the Freshwater Habitat.	NT	High	*Anas erythrorhyncha* (Red-billed Teal)	The Red-billed Teal is found across much of South Africa, although it is sparse or absent in arid regions. The largest populations are located on the Highveld and in the Western Cape. This species prefers shallow, permanent or temporary eutrophic freshwater wetlands, such as dams, sewage ponds, and other artificial wetlands, which typically have submerged, floating, and peripheral vegetation. Their diet mainly consists of plant materials, particularly the seeds of various grasses and aquatic plants, as well as the stems of these plants. This species has a high POC within the study area as suitable habitat is available in the dams in the Freshwater Habitat and they have been recorded within the SABAP2 pentads.	NT	High
Anhinga rufa (African Darter)	The African darter is found throughout sub-Saharan Africa wherever large bodies of water occur. It feeds on fish, which it catches by diving. This species has been recorded in surrounding area on iNaturalist and SABAP2 pentads and marginally suitable habitat is present in the Freshwater Habitat. Habitat is marginally suitable as the water bodies located in the study area are not large, therefore this species may only occur temporarily within.	NT	Medium	*Anas undulata* (Yellow-billed Duck)	The yellow-billed duck is a common resident breeder found in southern and eastern Africa. While it is not migratory, it may wander during the dry season in search of suitable water sources. Outside of the breeding season, this duck is very social and often forms large flocks. It inhabits freshwater environments in relatively open areas and primarily feeds by dabbling for plant material, typically in the evening or at night. The duck nests on the ground in dense vegetation located near water. This species has a high POC as suitable habitat is present in the Freshwater Habitat and they have been observed within the study area's SABAP2 pentads and on iNaturalist.	NT	High
Falco biarmicus (Lanner Falcon)	Lanner Falcons prefer open grassland or cleared woodland habitat where they will hunt birds, small mammals, reptiles and insects. They mainly breed on cliffs but they are also known to make nests in trees, on buildings, and on pylons. Although suitable hunting habitat is present within the Secondary Grassland	VU	Medium	*Elanus caeruleus* (Black-winged Kite)	The black-winged kite is a species primarily of open land and semi-deserts in sub-Saharan Africa. Their prey includes grasshoppers, crickets and other large insects, lizards, and rodents. Injured birds, small snakes and frogs have also been reported. This species has been recorded within SABAP2 pentads and on iNaturalist in the	NT	High

	Habitat, and the species has been recorded recently within SABAP2 pentads associated with the study area, the isolation of the site within an urban landscape is likely to restrict regular use, thereby reducing the species' POC to medium.				surrounding area and may utilise the Modified and Secondary Grassland habitats for hunting.		
Ardea alba (Great Egret)	The Great Egret is usually found in shallow, open waters such as rivers, lakes, marshes, flooded grasslands, floodplains, saltpans, and estuaries. The diet of the Great Egret is mostly fish and amphibians, but insects, birds, and small mammals are also consumed. This species has a high POC, as suitable habitat is available within the Freshwater Habitat and it has been recorded in the SABAP2 pentads associated with the study area.	NT	High	*Nycticorax nycticorax* (Black-crowned Night Heron)	It is widespread in Southern Africa but typically absent from dry regions such as the Northern Cape. They inhabit wetlands, rivers, lakes, swamps, marshes, estuaries, as well as dams and ponds where they have a wide tolerance for water conditions. A generalist feeder, known to eat a wide variety of shoreline and aquatic species such as fish, frogs, tadpoles, turtles, snakes, lizards, adult and larval insects etc. This species has been recorded within the study area's SABAP2 pentads, and suitable habitat occurs within the Freshwater Habitat, resulting in a high POC.	NT	High
Falco vespertinus (Red-footed Falcon)	Within the region it prefers large, open, grassy spaces in arid woodland, where it is present from October to November, with numbers peaking in January to February as a non-breeding migrant. It is relatively uncommon and is prone to localised movements in response to rainfall and resultant insect irruptions. It is a generalist predator that typically hunts on the wing but will also take prey from the ground. Its diet consists primarily of arthropods, including insects, centipedes, solifuges and occasionally small vertebrates. Although this species has been recorded in the region, these are older records (2015) and the isolated nature of study area within an urban landscape limits this species potential usage of the study area.	NT	Medium	*Alcedo semitorquata'* (Half-Collared Kingfisher)	This kingfisher is strictly water-associated, inhabiting the dense inner marginal zones of riparian vegetation in the immediate vicinity of perennial streams and rivers that provide secluded conditions. It also frequents well-vegetated banks of lakes, dams, estuaries, and coastal lagoons. Only marginally suitable habitat is present within the Freshwater Habitat, as this species prefers denser riparian vegetation than is available in the study area. This, together with an older SABAP2 record (2017), results in a low POC.	NT	Medium
Spatula smithii (Cape Shoveler)	The Cape Shoveler primarily inhabits shallow, plankton-rich wetlands and dams, but it is also found in tidal estuaries, saltpans, saline lagoons, and the shallow bays and upper reaches of large dams. This species has been	NT	High	*Netta erythrophthalma* (Southern Pochar	In South Africa, their presence is widespread but unevenly distributed, with the highest concentrations found in the central part of the region. They prefer large bodies of deep, clear water, which can be either permanent or	NT	High

	recorded in a SABAP2 pentad associated with the study area and suitable habitat is present within the dams in the Freshwater Habitat.				temporary. These can include sewage ponds, shallow marshes, lakes, and pools, ideally with submerged vegetation. Their primary diet consists of seeds, but they also consume the roots and vegetative parts of aquatic plants, supplementing their diet with grasses, sedges, and various aquatic invertebrates. This species has a high POC as suitable habitat is present in the Freshwater Habitat and they have been observed in the surrounding area on SABAP2.		
Anarhynchus pecuarius (Kittlitz's Plover).	The Kittlitz's Plover is found in both inland and coastal regions and favours open habitats at low elevations. It typically prefers dry areas like open mudflats with short grass located in or near water bodies. Its breeding habitats are varied and include lakes, rivers, alkaline grasslands, lagoons, tidal mudflats, inland saltmarshes, as well as artificial water bodies. Although the species has been recorded in pentads surrounding the study area, the records are relatively old (2018). When considered alongside the high degree of anthropogenic disturbance affecting suitable habitat within the study area, a medium POC is assigned.	NT	Medium	*Circus ranivorus* (African Marsh Harrier)	The African Marsh Harrier is a bird of prey that can be found in wetlands and marshlands. They are dependent on permanent wetlands, both inland and coastal, for breeding, feeding and roosting. African Marsh Harriers primarily feed on small mammals, reptiles, and amphibians. While suitable habitat is present within the Freshwater Habitat and the species has been recorded in one of the study area's SABAP2 pentads, surrounding anthropogenic disturbances will restrict usage of this habitat.	EN	Low
Eupodotis senegalensis (White-bellied Korhaan)	The White-bellied Korhaan inhabit a wide range of habitats, including savannahs, grasslands, and woodlands and occasionally moves into cultivated fields to forage. They primarily feed on insects, such as beetles, grasshoppers, and termites but may also consume small mammals, reptiles, and fruits. The study area falls within this species distribution and suitable habitat is present in the Secondary Grassland. However, this species has not been recorded on iNaturalist or SABAP2 pentads in the surrounding area. Additionally, the high levels of anthropogenic disturbance in the study area lowers the likelihood that this species will utilise the habitat within, resulting in a low POC.	VU	Low	*Falco naumanni* (Lesser Kestrel)	The Lesser Kestrel is closely linked to grassland habitats and occurs in areas such as the grassy Karoo, the western edges of the grassland biome, and the southeastern Kalahari. It is known to hunt in modified landscapes, as long as these have not been entirely converted to sugarcane fields or plantation forests. In the Western Cape, it forages over small grain fields and pastures that were formerly Fynbos and Renosterveld. Although the Lesser Kestrel has been recorded in the surrounding area (SABAP2 pentad), it is expected to forage only occasionally within the Secondary Grassland habitat and is unlikely to utilise it extensively.	VU	Medium

Tyto capensis (African Grass Owl)	The African Grass Owl typically roosts and breeds in tall, rank grass or sedges associated with damp substrates such as permanent and non-perennial wetlands and streams. At night it may hunt over drier and more open habitats near its wetland roost sites but still prefers hunting in tall grassland to short grassland, wetlands or croplands. Although this species has been recorded in the surrounding area, the disturbed nature of the Secondary Grassland and Freshwater Habitats results in a medium POC. Habitat disturbance has reduced grass height and density, decreasing suitability. As a result, the study area is likely to be used only intermittently for foraging, with no roosting or breeding anticipated.	VU	Medium	*Podica senegalensis* (African Finfoot)	An aquatic bird which prefers permanent rivers and streams with thick riparian vegetation and overhanging trees. They feed on aquatic invertebrates and sometimes on small vertebrates which they hunt while swimming or walking on the riverbanks. Although, this species has been recorded on iNaturalist in the surrounding area, the high levels of anthropogenic disturbance reduces habitat suitability for this species in the study area.	VU	Low
Podiceps cristatus (Great Crested Grebe)	The Great Crested Grebe primarily inhabits large inland wetlands, lakes, and pans, typically bordered by emergent vegetation. It may occasionally be observed on saltpans and is rarely recorded at sea. The species is largely confined to deep, permanent water bodies. As it relies on clean water for survival, it is considered an indicator species for water quality. Although this species has been recorded in SABAP2 pentads, suitable Habitat is not present in the Freshwater Habitat (dams) due to the potential change in water quality associated with its proximity to developments, thus lowering this species POC.	VU	Low	*Asio capensis* (Marsh Owl)	They are common in the grasslands of southern Africa, occurring in the northern regions of South Africa down to the province of the Eastern Cape. The marsh owl's habitat preference is open grassland, marshlands and short scrub, typically near marshy grounds, vleis or dams where they will nest on the ground. The marsh owl typically feeds on small rodents, insects and other small vertebrates. Despite records of the species in the surrounding area, disturbance within the Secondary Grassland and Freshwater habitats has resulted in reduced vegetation cover and density, leading to a medium POC. The species may therefore make only occasional use of the study area for hunting and is unlikely to roost or breed within it.	NT	Medium
Grus paradisea (Blue Crane)	Blue Cranes are a near endemic species to South Africa which prefer dry and open grasslands. They are also commonly found in agricultural landscapes where they forage primarily on insects, such as grasshoppers, crickets, and beetles, as well as seeds, bulbs, and roots of various plants. They usually breed within wetland habitat. Although this species	VU	Low	*Dendrocygna bicolor* (Fulvous Whistling Duck)	The Fulvous Whistling Duck typically occupies shallow freshwater or brackish wetlands dominated by tall grasses. Preferred habitats include freshwater lakes, seasonal pools, slow-flowing streams, marshes, swamps in open flat landscapes, and flooded grasslands. The species is also commonly associated with wet rice cultivation areas. During its flightless moulting	NT	Medium

	has been recorded on iNaturalist and SABAP2 (with the most recent record from 2011), and suitable habitat exists within the Secondary Grassland and Freshwater Habitat, the age of these records, combined with high levels of human activity and disturbance in the study area and its isolation within a urban landscape, results in a low POC for this species.				period, it seeks shelter in densely vegetated wetlands, where it is less vulnerable to predation. Although this species has been recorded in SABAP2 pentad, the disturbance within the study area limits the potential to support this species permanently as such it only occasionally seek refuge in the wetland within the Freshwater Habitat.		
Sagittarius serpentarius (Secretarybird)	This species is widespread throughout sub-Saharan Africa and has a broad distribution in South Africa. They prefer open grasslands and savannahs with scattered trees for nest sites. They are carnivorous and feed primarily on insects and reptiles, such as snakes, and lizards. This species has been listed as a species of concern for the Gauteng Department of Agricultural and Rural Development (GDARD) for the surrounding area. However, the degraded nature of the Secondary Grassland coupled with the high levels of anthropogenic disturbance results in lack of suitable habitat and a low POC.	EN	Low	*Oxyura maccoa* (Maccoa Duck)	The Maccoa Duck is found in small, shallow, nutrient-rich inland lakes in the breeding season. It is also known to utilise man-made farm dams and sewage farms. In the non-breeding season, they make use of deeper, larger bodies of water. Although this species has been recorded on SABAP and iNaturalist, these records are older (2013) and the extensive anthropogenic disturbance in the study area limits this species usage of the Freshwater Habitat within.	VU	Low
Sarkidiornis melanotos (Knob-billed Duck)	Knob-billed Ducks utilise a range of wetlands—including rivers, freshwater swamps, lakes, rice fields, and man-made habitats like dams. Although this species has been recorded on SABAP (2015 record) and suitable habitat is present within the Freshwater Habitat, this species occurs at very low densities in high-altitude areas such as where the study site is located, and therefore has a low POC.	NT	Low	*Aquila rapax* (Tawny Eagle)	Tawny Eagles are found in lightly wooded savannah and thornveld as well as semi-desert habitats. Scavenging and piracy are two of the most important foraging strategies for Tawny Eagles. This species has been recorded on iNaturalist in the surrounding area and is a species of concern for the Gauteng Department of Agricultural and Rural Development (GDARD). However, the lack of suitable habitat results in a low POC.	EN	Low
Phoenicopterus roseus (Greater Flamingo)	Greater Flamingos occur on brackish and saline water bodies such as saltpans, where they forage on aquatic invertebrates and algae. Greater Flamingos have been recorded in SABAP2 pentads and on iNaturalist. However, the absence of suitable habitat within the study area results in a low probability of occurrence.	NT	Low	*Phoeniconaias minor* (Lesser Flamingo)	This species occurs within open, shallow, alkaline and saline wetlands (e.g., saltpans). They feed on diatoms and cyanobacteria when wading through shallow water. Although, this species has been recorded in SABAP2 pentads and on iNaturalist, suitable habitat is not present resulting in a low POC.	VU	Low

Aquila verreauxii (Verreaux's Eagle)	Verreaux's Eagle is a solitary nester, constructing a large stick nest on a rocky outcrop or cliff, and occasionally in a tree or on a power pylon. This eagle primarily preys on Rock Hyrax (*Procavia capensis*), although, like other raptors, it is an opportunistic predator that will also hunt medium-sized mammals, large birds, and carrion. Although this species has been recorded in the surrounding area on iNaturalist, it is unlikely to forage or roost within the study area due to its isolation in an urban landscape and a lack of suitable habitat.	VU	Low	*Gyps coprotheres* (Cape Vulture)	The Cape Vulture typically breeds and roosts on cliff faces in or near mountainous areas. It is known to forage in steep, wooded savannas, and nest within surrounding mountainous areas. Although, this species has been recorded iNaturalist in the surrounding area, it is unlikely to be found within the study area due to lack of scavenging opportunities and its isolation in an urban landscape.	EN	Low

Avifauna Discussion

As part of the avifaunal assessment, data from SABAP2 Pentad 2555_2805 and 2555_2800 were consulted to provide insight into the bird assemblages potentially present within the study area. The vegetation structure presented by the site has been altered due to both historical and ongoing anthropogenic impacts, including historic developments of culverts, current and historic grazing, increased human presence, and potential disturbance and predation from associated pets (cats and dogs). However, habitat within the study area remains suitable for several avifaunal species that are able to adapt to high levels of disturbance and utilise habitat within urban landscapes.

The Secondary Grassland, although relatively homogeneous, supports granivore and insectivorous birds through the variety of invertebrate species it attracts. The Freshwater Habitat provides shelter and breeding habitat for various water-associated birds, while also attracting aquatic invertebrates and amphibians as prey. Additionally, invertebrates, small mammals and reptiles, which serve as important food resources for insectivorous and carnivorous bird species, will forage within these habitats from the surrounding Modified Habitat and urban area. In contrast, the Modified Habitat is expected to support reduced avifaunal diversity and abundance due to its diminished habitat quality. Ornamental trees and lawns in the Modified Habitat provide shelter and foraging opportunities for bird species, but these species will be limited to highly adaptable, commonly occurring species. Some examples of these species were observed during the filed assessment and include: *Ardea melanocephala* (Black-headed Heron, LC), *Streptopelia capicola* (Ring-necked Dove, LC), *Plectropterus gambensis* (Spur-winged Goose, LC), *Bostrychia hagedash* (Hadada Ibis, LC), *Ploceus velatus* (Southern Masked Weaver, LC), *Vanellus senegallus* (African Wattled Lapwing, LC), *Cecropis cucullata* (Greater-striped Swallow, LC), and *Lanius collaris* (Southern Fiscal, LC) amongst others. A comprehensive list of observed avifaunal species is provided in Appendix D.

No avifaunal SCC were directly observed during the field assessment. Several avifaunal SCC have a high POC in the study area, however most of these SCC are known for the adaptability to more disturbed and modified landscapes (e.g., *Elanus caeruleus* (Black-winged Kite), and some waterfowl amongst others listed above). More sensitive SCC may only occasionally use the site for foraging purposes and will favour less disturbed habitat in the surrounding landscape. Some examples of these species include *Tyto capensis* (African Grass Owl) and *Asio capensis* (Marsh Owl), both of which are reliant on taller, more dense grasses adjacent to wetlands for roosting. The homogenous, degraded nature of the Secondary Grassland in the study area does not provide this opportunity. Therefore, these SCC are more likely to opportunistically forage within the study area and roost elsewhere.

3.6 Herpetofauna (Amphibians and Reptiles)

Table 3: Field assessment results pertaining to herpetofauna within the study area.

Photographs

a and b.) Suitable habitat for Herpetofauna under old anthropogenic infrastructure; c). *Trachylepis punctatissima* (Speckled Rock Skink, LC); and d.) Potential suitable habitat for *Pyxicephalus adspersus* (Giant Bullfrog, P-TOPS) and other amphibian species in the Freshwater Habitat.

Herpetofauna SCC

Species	Habitat and Resources in the Site	RDL Status	POC
Pyxicephalus adspersus (Giant Bullfrog)	This species is found within various vegetation types within the Grassland, Savanna, Nama Karoo, and Thicket biomes, primarily breeding in seasonal, shallow, grassy pans situated in flat, open areas. It also makes use of non-permanent vleis and shallow waters along the peripheries of waterholes and dams. While it occasionally inhabits clay soils, it exhibits a preference for sandy substrates. The Secondary Grassland and Freshwater habitats are likely to support this species by providing suitable conditions for breeding, aestivation, and foraging. Together with multiple records of the species in the surrounding area on iNaturalist, this results in a high POC.	Protected (NEMBA: TOPS 2007)	High
Homoroselaps dorsalis (Striped Harlequin Snake)	This species is cryptic but is known to inhabit grasslands, especially termite mounds found in grasslands. Therefore, suitable habitat is available as it may be found on grassy slopes, underground or at the base of tussocks in the Secondary Grassland habitat.	NT	Medium
Kinixys lobatsiana (Lobatse Hinged Tortoise)	It is a species of open or closed mixed savanna inhabiting rocky hillsides, feeding on plants and invertebrates (snails, millipedes and beetles). It brumates in abandoned animal burrows or rock crevices, making these important localities for the species in the dry winter season. Although this species has been recorded in the surrounding region, the lack of suitable habitat for this species in the study area, together with limited movement corridors, results in a low POC.	VU	Low

Chamaesaura aenea (Coppery Grass Lizard)	Restricted to the Grassland Biome, this species occurs on the grassy slopes and plateaus of the eastern escarpment and Highveld. It is found at elevations ranging from 1,400 to 2,100 m in KwaZulu-Natal, reaching up to 2,218 m in Mpumalanga and 2,228 m in the Free State. The species likely shelters at the bases of grass tussocks, similar to other *Chamaesaura* species. This species is unlikely to occur within the Secondary Grassland in the study area as it is too isolated and disturbed.	NT	Low

Herpetofauna Discussion

Although habitats within the study area are subject to anthropogenic disturbance, they are capable of supporting a diversity of common reptile and amphibian species due to their ability to adapt to disturbed and transformed environments. The presence of open water and elevated moisture levels within the Freshwater Habitat provides suitable breeding and foraging opportunities for amphibians. Old rubble and wood piles within the Secondary Grassland may offer refuge for small reptile species. Despite the relatively homogeneous vegetation structure of the Secondary Grassland, invertebrate species typically associated with disturbed grasslands are likely to persist, while the Freshwater Habitat supports water-dependent invertebrates. Consequently, the Freshwater and Secondary Grassland habitats provide important food resources for amphibians and reptiles, particularly during the summer months.

A variety of microhabitats, including old rubble and wood piles, walls and woody vegetation provided by ornamental trees within the Modified Habitat (supporting arboreal species such as geckos and snakes), as well as moist areas suitable for moisture-dependent species, further enhances the site's potential to support herpetofauna diversity. Additionally, rodents were observed to be abundant within the Grassland and Modified habitats and, together with potentially high amphibian abundance, are likely to attract a range of predatory snake species.

Only one common reptile species, *Trachylepis punctatissima* (Speckled Rock Skink), and no amphibian species were recorded during the 2025 field assessment. However, some examples of common reptile and amphibian species expected to occur include: *Hemachatus haemachatus* (Southern Rinkhals, LC), *Boaedon capensis* (Brown House Snake), *Pachydactylus affinis* (Transvaal Thick-toed Gecko), *Sclerophrys capensis* (Raucous Toad), *Sclerophrys gutturalis* (Guttural Toad), *Kassina senegalensis* (Bubbling Kassina), and *Tomopterna cryptotis* (Tremolo Sand Frog). The cryptic and elusive behaviour of many herpetofauna species as well as the season when the field assessment took place (winter), likely contributed to the low number of observations recorded during the survey.

One TOPS-listed amphibian, *Pyxicephalus adspersus* (Giant African Bullfrog), is considered to have a high POC within the study area due to the presence of suitable habitat and iNaturalist records in the surrounding area. In addition, one reptile SCC, listed above, are assigned a medium POC based on the availability of suitable habitat.

3.7 Invertebrates (Insects and Arachnids)

Table 4: Field assessment results pertaining to invertebrate species within the study area.

Photographs

a.) *Gryllus bimaculatus* (Common Garden Cricket, NYBA); b.) *Eurema brigitta* (Broad-bordered Grass Yellow, LC); c.) *Diplazon laetatorius* (Parasitoid Wasp, LC); d.) *Poeciloblatta angusta* (Cockroach species, NYBA).

Invertebrate SCC

Species	Habitat and Resources in the Sites	Conservation Listing	POC
Aloeides dentatis dentatis (Roodepoort Copper)	This is a rare and localised species that occurs in grasslands, flatlands and mountains. Its preferred habitat in Gauteng is sandy grasslands. The disturbed nature of the habitat within the study area results in a low POC for this species.	EN	Low
Clonia uvarovi (Uvarov's Clonia Bush Cricket)	This predatory bush cricket is endemic to the highveld region of South Africa and inhabits tall woodland savannah. The lack of suitable habitat within the study area results in a low POC.	VU	Low
Ichnestoma stobbiai (Stobbia's Fruit Chafer Beetle)	Adults may reproduce, or larvae may feed on detritus underground near oviposition sites within rocky grassy areas. The lack of suitable habitat within the study area results in a low POC.	VU and P (TOPS)	Low
Metisella meninx (Marsh Sylph)	This species' preferred habitats are marshes and stream banks in wetlands found in open grassland. Suitable habitat is not present within the study area due to the degraded and disturbed nature of the habitats within.	NT	Low
Opistophthalmus glabrifrons (Shiny Burrowing Scorpion) &	Found on ridges and rocky outcrops under rocks and logs, where it burrows. Predominantly nocturnal species that feed on ground dwelling insects. These species could utilise rocks and logs in the Modified and Secondary Grassland habitat as well as the abundant invertebrate food sources found in the study area. Furthermore, these species have been recorded on iNaturalist in the surrounding area.	P (TOPS)	High

Opistophthalmus pugnax (Highveld Burrowing Scorpion)			

Invertebrate Discussion

Despite the presence of habitat disturbance and the spread of AIPs, insect populations are generally resilient, provided that essential food resources remain available. The diversity of vegetation within the habitat units, particularly the moist environment provided by the Freshwater Habitat, enhances the potential for supporting a wide range of insect species. Although AIP species are present, many of these still produce flowers that are utilised by pollinators, including species from the Orders Lepidoptera (butterflies and moths) and Hymenoptera (bees, wasps, sawflies, and ants). Herbivorous insects, such as members of the Orthoptera (locusts and crickets) Order, along with Lepidoptera larvae, are also expected to forage on the vegetation within the Secondary Grassland Habitat. The ornamental trees in the Modified Habitat also provide a microhabitat for insects that rely on more woody vegetation.

The dominant insect Orders observed during the assessment included Lepidoptera and Orthoptera. Arachnid (spiders and scorpions) observations were limited, largely due to the cryptic and secretive behaviour of many species, which reduces detectability. The seasonality of the field assessment (winter) also limited invertebrate detectability as their activity is lower in the colder winter months. However, their presence in the study area remains likely as rubble and wood piles as well as anthropogenic infrastructure, provide suitable refuges for arachnids and scorpions, including two protected species recorded in the broader area (listed above). No invertebrate SCC were recorded during the site visit and the three inveterate SCC triggered by the screening tool are not expected to occur within the study area due to a lack of suitable habitat.

4 SITE ECOLOGICAL IMPORTANCE (SEI) AND AREAS OF CONCERN

This section aims to (1) present the sensitivity of the receptors identified within the study area (e.g., SCC, the vegetation/fauna community or habitat type present on the site), and (2) clearly define and map areas where avoidance mitigation is strongly recommended if significant, negative residual impacts are to be avoided (and to prevent potential fatal flaws).

Based on the criteria provided in Appendix A of this report, all habitats within the study area were allocated an importance category, i.e., SEI category. The SEI is a function of the biodiversity importance (BI) of the receptor and its resilience to impacts (receptor resilience [RR]). The BI, in turn, is a function of conservation importance (CI) and the functional integrity (FI) of the receptor. The criteria for SEI can be found in Appendix A.

Table 5 below indicates the individual SEI scoring for each habitat unit respectively. Figure 6 and 7 indicate the SEI for the study area.

Table 5: Faunal SEI importance for the different habitat units associated with the study area.

Unit	CI	FI	BI	RR	SEI	Development Constraints
Freshwater Habitat	**Medium** Highly likely occurrence of NT species, listed under Criterion A only and which have more than 10 locations or more than 10 000 mature individuals. Some examples include *Anas erythrorhyncha* (Red-billed Teal) and *Ardea alba* (Great Egret), amongst others. Medium POC for other faunal SCC which may forage and/or roost within this habitat.	**Low** Only narrow corridors of habitat connectivity and a busy used road network between intact habitat patches. Several minor and significant current negative ecological impacts. Low rehabilitation potential.	**Low**	**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 remaining at a site even when a disturbance or impact is occurring, or species that have a low likelihood of returning to a site once the disturbance or impact has been removed.	**Medium**	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.
Secondary Grassland Habitat	**Medium** Highly likely occurrence of NT species, such as *Elanus caeruleus* (Black-winged Kite), listed under Criterion A only and which have more than 10 locations or more than 10 000 mature individuals. Medium POC for other faunal SCC which may forage within this habitat.	**Low** Almost no habitat connectivity but migrations still possible across some modified or degraded natural habitat and a busy used road network surrounds the area. Several minor current negative ecological impacts.	**Low**	**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 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.	**Low**	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.
Modified Habitat	**Medium** Highly likely occurrence of NT species, such as *Elanus caeruleus* (Black-winged Kite), listed under Criterion A only and which have more than 10 locations or more than 10 000 mature individuals. Medium POC for other faunal SCC which may forage and/or roost within this habitat.	**Low** Almost no habitat connectivity but migrations still possible across some modified or degraded natural habitat and a busy used road network surrounds the area. Several minor and major current negative ecological impacts.	**Low**	**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 returning to a site once the disturbance or impact has been removed.	**Very Low**	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

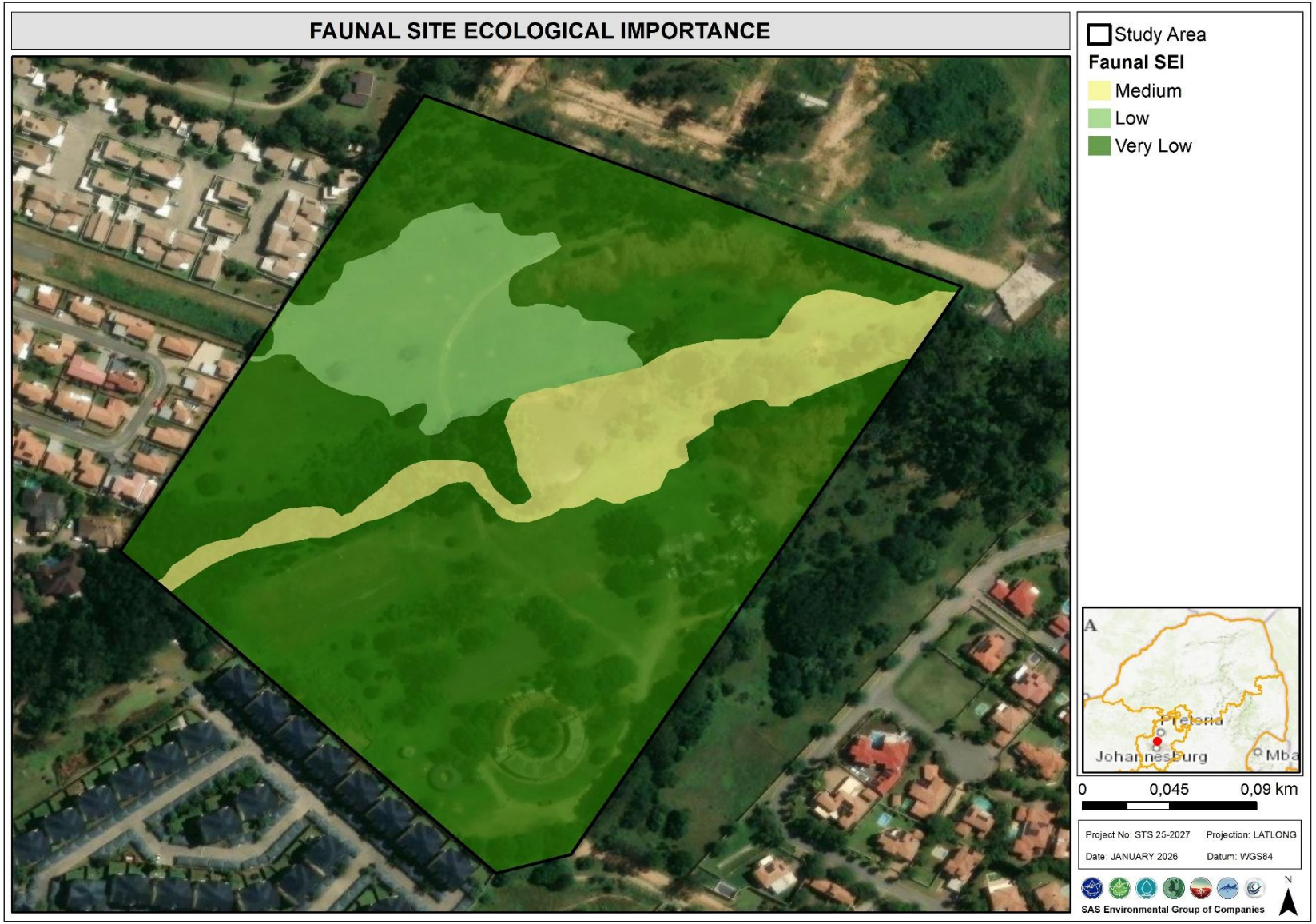


Figure 6: Faunal habitat sensitivity map for the study area.

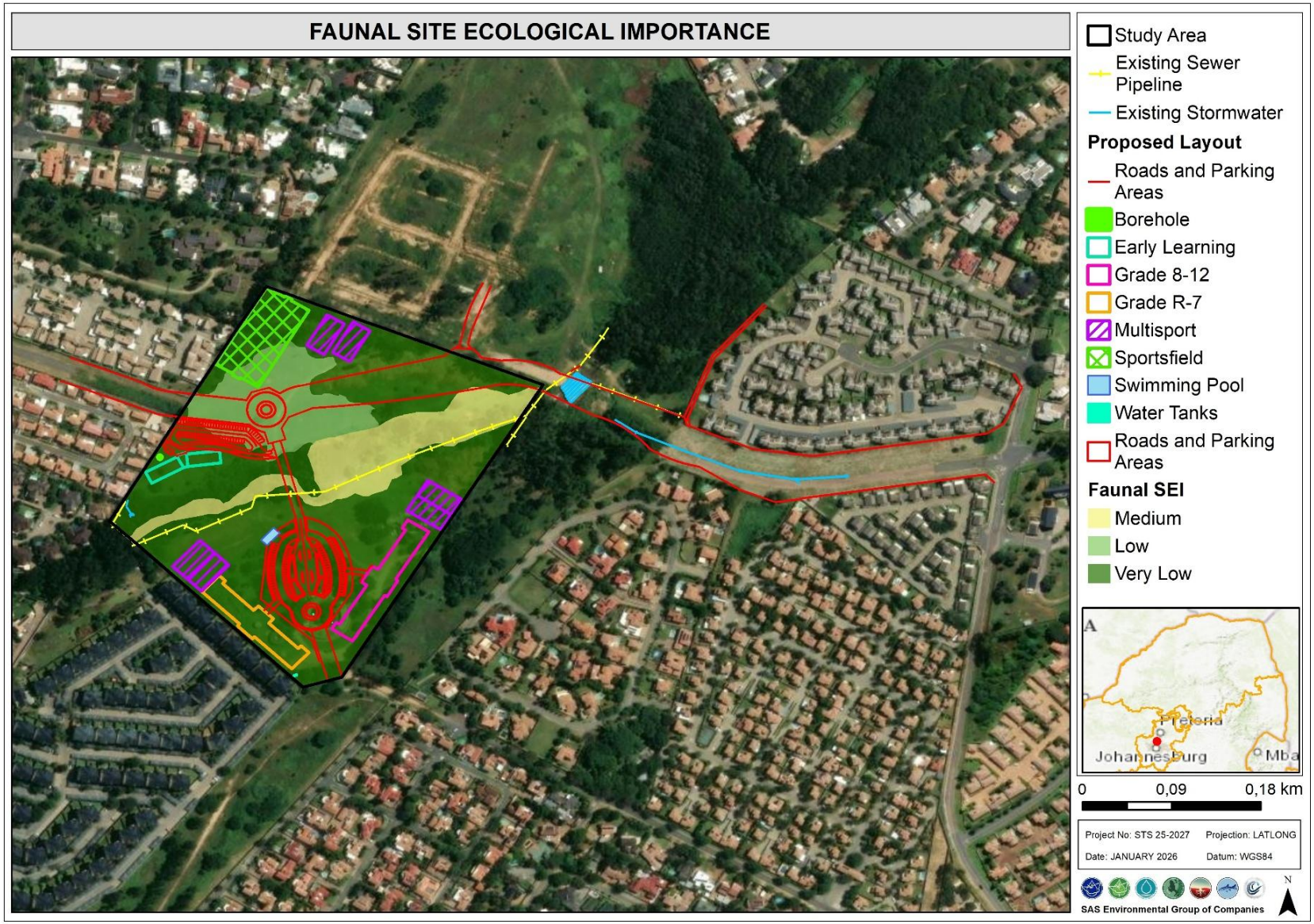


Figure 7: Faunal habitat sensitivity map for the study area overlaid with the proposed school development layout.

5 IMPACT ASSESSMENT

The following sections provide the findings of the impact assessment undertaken with reference to the perceived impacts prior to the implementation of mitigation measures and following the implementation of mitigation measures. The mitigated results of the impact assessment have been calculated on the premise that all mitigation measures as stipulated in this report are adhered to and implemented. Should such actions not be adhered to, it is highly likely that post-mitigation impact scores will increase.

The proposed development layout (Figure 2) shows that the development will largely avoid the Freshwater Habitat and its associated ecological buffer, with the exception of two proposed road crossings. This impact assessment therefore, assumes that direct loss of Freshwater Habitat will be limited to these crossings, while the remaining Freshwater Habitat will be retained as natural open space. For the other habitat units, any open spaces located beyond the Freshwater Habitat's ecological buffer are assumed to be transformed into ornamental gardens and lawns. Indirect impacts will still be considered and discussed for all habitat units, particularly for the Secondary Grassland and Freshwater Habitat remaining in the operational phase.

An impact discussion and assessment of all potential planning, construction, and operational and maintenance phase impacts are provided in Section 5.2 and 5.3. All mitigatory measures required to minimise the perceived impacts are presented in Section 5.2.

5.1 Activities and Aspect Register

The table below indicates the perceived risks to faunal communities associated with the activities pertaining to the proposed development.

Table 6: Activities and aspects likely to impact on faunal resources.

ACTIVITIES AND ASPECTS REGISTER
Pre-Construction Phase
- Potential failure to implement the required mitigatory measures before and at the commencement of construction activities: • Potential failure to obtain the necessary permits for the rescue and relocation of protected faunal species should they be needed resulting in delays to the construction activities. - **Impact**: Long-term or permanent loss of potential faunal SCC and / or TOPS listed species.
- Potential failure to implement an AIP Management/Control Plan before construction activities commence which is required and will subsequently aid with improved AIP management and rehabilitation in the long term for areas that will form an open space area. - **Impact**: Loss of niche habitat, limiting the re-establishment potential of faunal species and of potential faunal SCC due to the proliferation of unfavourable AIPs.

ACTIVITIES AND ASPECTS REGISTER
- Failure to demarcate the boundaries of adjacent habitat in the study area leading to additional encroachment of development activities throughout construction and operational phases into adjacent faunal habitat. - **Impact:** The unnecessary clearing of vegetation and loss of faunal habitat, leading to further displacement of faunal species, including potentially occurring SCC.
Construction Phase
- Site clearing and the removal of faunal habitat in the Secondary Grassland and Freshwater Habitat due to poor planning and indiscriminate habitat destruction; - **Impact:** Loss of faunal habitat whilst reducing species occupancy in the impacted areas.
- Proliferation of AIP species that colonise in areas of increased disturbances and that outcompete native plant species, including the further transformation of adjacent natural habitat such as open grasslands and watercourses. - **Impact:** Loss of favourable faunal habitat outside of the direct development footprint, including a decrease in faunal species diversity, including potential SCC.
- Dumping of construction material outside of the final infrastructure footprint, thereby leading to further habitat disturbance, which will promote the establishment and spread of AIPs. - **Impact:** Loss or degradation of favourable faunal habitat, diversity and potential SCC.
- Additional pressure on faunal habitat, diversity and abundance as a result of an increased human presence associated with the proposed development, contributing to: • Potential hunting/trapping/removal/collection of faunal species or potential SCC; and • Increased human activity will lead to the displacement and/or loss of potential faunal SCC. - **Impact:** Loss of faunal habitat and the loss of potential faunal SCC.
- Potentially poorly managed edge effects: • Ineffective rehabilitation of compacted areas, bare soils, or eroded areas leading to ongoing degradation of surrounding natural areas altering faunal habitat on an increased scale; and • Compaction of soils outside of the study area due to indiscriminate driving of construction vehicles through natural vegetation. - **Impact:** Loss or degradation of faunal habitat, diversity, and potential SCC within the direct footprint of the proposed development. Loss of surrounding faunal diversity and potentially occurring SCC.
- Possible increased fire frequency during construction. - **Impact**: Loss or alteration of faunal habitat and species diversity.
Operational and Maintenance Phase
- Increased human presence in the area once operational, potentially leading to an increased littering and other waste impacting on faunal communities outside of the development footprint, notably in open areas where no construction is planned (i.e., remaining habitat within the study area). - **Impact:** Loss of faunal habitat, potential SCC, as well as overall species diversity within the study area.
- The potential occasional presence of domestic animals (e.g., dogs) and informal recreational use of open areas may contribute to disturbance of fauna and degradation of adjacent remaining habitats where no construction is planned. - **Impact:** Loss of faunal habitat, potential SCC, as well as overall species diversity within the study area.
- Ineffective rehabilitation of exposed and impacted areas potentially leading to vegetation succession and a possible reduction of faunal diversity and occurrence of potential faunal SCC over the long-term. - **Impact:** Permanent loss of faunal habitat, diversity and potential SCC, and a higher likelihood of edge effect impacts on adjacent and nearby natural faunal habitat. Further reduction of available habitat in the long-term, compounding the limiting factors to faunal assemblages.
- Potential poor management and failure to monitor rehabilitation efforts, leading to: • Increased storm water run-off; • Compacted soils limiting the re-establishment of natural vegetation; and • Increased risk of erosion in areas left disturbed. - **Impact:** Long-term (or permanent) loss of faunal habitat, diversity and potential SCC within disturbed / impacted areas.
- Poorly implemented and monitored AIP Management programme leading to the reintroduction and proliferation of AIP species. - **Impact:** Permanent loss of surrounding faunal habitat, diversity, and potential SCC.
- On-going disturbance during operational phase may lead to erosion and sedimentation of surrounding faunal habitat. - **Impact:** Degradation of favourable habitat and limited potential for faunal re-colonisation leading to loss of faunal habitat and diversity within the local area.

5.2 Faunal Impact Assessment Results

The below tables (Table 7 - 9) indicate the perceived risks to the faunal ecology (Habitat, Diversity and SCC) associated with all phases of the proposed activities. The table also provides the findings of the impact assessment undertaken with reference to the perceived impacts prior to the implementation of mitigation measures and following the implementation of mitigation measures. Key integrated mitigation measures that are applicable to the proposed project are also presented in each table and are required to suitably manage, minimise and where possible, mitigate the ecological impacts that are associated with all phases of the proposed activities.

The mitigated results of the impact assessment have been calculated on the premise that all mitigation measures as stipulated in this report are adhered to and implemented. Should such actions not be adhered to, post-mitigation impact scores will likely increase.

Table 7: Planning Phase impacts on faunal habitat, diversity, and SCC from the proposed development. Required mitigation measures are presented at the bottom of the table.

Habitat Units	UNMANAGED								MANAGED							
	Probability of Impact	Sensitivity	Severity	Spatial Scale	Duration of Impact	Likelihood	Consequence	Significance	Probability of Impact	Sensitivity	Severity	Spatial Scale	Duration of Impact	Likelihood	Consequence	Significance
Faunal Habitat and Diversity																
Secondary Grassland Habitat	3	2	2	2	2	**5**	**6**	**30 Low**	2	2	1	1	2	**4**	**4**	**16 Very Low**
Modified Habitat	3	1	2	2	2	**4**	**6**	**24 Very Low**	2	1	1	1	2	**3**	**4**	**12 Very Low**
Freshwater Habitat	3	3	2	2	2	**6**	**6**	**36 Low**	2	3	1	1	2	**5**	**4**	**20 Very Low**
Faunal SCC																
Secondary Grassland Habitat	3	2	2	2	2	**5**	**6**	**30 Low**	2	2	1	1	2	**4**	**4**	**16 Very Low**
Modified Habitat	3	1	2	1	2	**4**	**5**	**20 Very Low**	2	1	1	1	2	**3**	**4**	**12 Very Low**
Freshwater Habitat	3	3	2	2	2	**6**	**6**	**36 Low**	2	3	1	1	2	**5**	**4**	**20 Very Low**
Mitigation Measures																
➢ It must be ensured that, as far as possible, all proposed infrastructure, including temporary infrastructure, is not placed outside of the authorised footprint, especially within the remaining adjacent Freshwater and Secondary Grassland Habitat; ➢ The area in which construction activities are to take place must be fenced off and clearly demarcated; ➢ Where possible, and feasible, all access roads should be kept to existing roads; ➢ Appropriate Rehabilitation plans and measures, as well as an AIP and Erosion Control Plan should be developed for implementation during the later stages of the development; ➢ Pedestrian and vehicle movement in areas where no development is planned should be restricted to prevent further disturbance to the receiving environment; ➢ In the event that any faunal SCC listed in Appendix B are encountered in the study area and require relocation, the relevant provincial and national permits should be obtained from the DFFE and GDARD. An ecologically and legally sound action plan should be developed and be ready for implementation for the protection of potentially occurring SCC throughout the Construction, Operational and Maintenance phases; and															

Habitat Units	UNMANAGED								MANAGED							
	Probability of Impact	Sensitivity	Severity	Spatial Scale	Duration of Impact	Likelihood	Consequence	Significance	Probability of Impact	Sensitivity	Severity	Spatial Scale	Duration of Impact	Likelihood	Consequence	Significance
➢ Prior to vegetation clearing activities, the footprint area should be inspected for the presence of burrowing scorpions, reptiles and amphibians. If located, these species should be carefully excavated and relocated to similar surrounding habitat outside of the footprint area. The relevant permitting should be acquired for the relocation of such species.																

Table 8: Construction Phase impacts on faunal habitat, diversity, and SCC from the proposed development. Required mitigation measures are presented at the bottom of the table.

Habitat Units	UNMANAGED								MANAGED							
	Probability of Impact	Sensitivity	Severity	Spatial Scale	Duration of Impact	Likelihood	Consequence	Significance	Probability of Impact	Sensitivity	Severity	Spatial Scale	Duration of Impact	Likelihood	Consequence	Significance
Faunal Habitat and Diversity																
Secondary Grassland Habitat	5	2	3	2	3	**7**	**8**	**56 Medium-Low**	5	2	2	2	3	**7**	**7**	**49 Low**
Modified Habitat	5	1	2	2	3	**6**	**7**	**42 Low**	5	1	1	1	3	**6**	**5**	**30 Low**
Freshwater Habitat	5	3	3	2	3	**8**	**8**	**64 Medium-Low**	4	3	2	2	3	**7**	**7**	**49 Low**
Faunal SCC																
Secondary Grassland Habitat	4	2	3	2	3	**6**	**8**	**48 Low**	3	2	2	2	3	**5**	**7**	**35 Low**

Habitat Units	UNMANAGED								MANAGED							
	Probability of Impact	Sensitivity	Severity	Spatial Scale	Duration of Impact	Likelihood	Consequence	Significance	Probability of Impact	Sensitivity	Severity	Spatial Scale	Duration of Impact	Likelihood	Consequence	Significance
Modified Habitat	2	1	2	1	3	**3**	**6**	**18 Very-Low**	1	1	1	1	3	**2**	**5**	**10 Very-Low**
Freshwater Habitat	4	3	3	2	3	**7**	**8**	**56 Medium-Low**	3	3	2	2	3	**6**	**7**	**42 Low**

Mitigation Measures

- Vehicles should be restricted to travelling only on designated roadways to limit the ecological footprint of the construction activities. Additional road construction should be limited to what is absolutely necessary, and the footprint thereof kept to a minimal;
- The development footprint should be demarcated, and it should be ensured that no construction-related activities take place outside of the demarcated footprint, most notably in the Freshwater Habitat and Secondary Grassland Habitat;
- Vegetation clearing should be conducted in a phased or slow paced manner to allow fauna enough time to escape areas ahead of the clearance activities as far as possible;
- Where bare soils are left exposed post construction activities, they should be immediately rehabilitated;
- In the event that reptiles are encountered during construction activities, harmless species should be carefully relocated by a suitably nominated construction personnel member. For larger and/or venomous snakes, a suitably trained professional or site personnel should be contacted to assist in the relocation of individuals, should it not move off on its own. No reptiles are to be killed or harmed;
- If any TOPS listed arachnids (Burrowing Scorpions) or aestivating amphibians are encountered, the relevant authorities are to be consulted as to the best way forward regarding safe handling and relocation of the unearthed individuals;
- Edge effects stemming from construction activities, which may affect adjacent areas, need to be strictly managed, notably around the Freshwater Habitat;
- No construction rubble or cleared alien invasive species are to be disposed of outside of demarcated areas, and should be taken to a registered waste disposal facility;
- No informal fires by construction personnel are to be allowed;
- No hunting/trapping or persecution of fauna must be allowed;
- As far as possible, vegetation clearance activities should be undertaken in the winter months, as faunal species will not be breeding and there is less risk to nesting avifauna;
- Outside lighting should be designed to minimise impacts on fauna, especially invertebrates. Use of fluorescent, LED and mercury vapour lighting should be avoided and sodium vapour (yellow) lights should be used wherever possible for outside lighting; and
- Should any faunal SCC be encountered, construction should be halted, and a suitably qualified specialist consulted to help ascertain the best way forward.

Table 9: Operation and Maintenance Phase impacts on faunal habitat, diversity, and SCC from the proposed development. Required mitigation measures are presented at the bottom of the table.

Habitat Units	UNMANAGED								MANAGED							
	Probability of Impact	Sensitivity	Severity	Spatial Scale	Duration of Impact	Likelihood	Consequence	Significance	Probability of Impact	Sensitivity	Severity	Spatial Scale	Duration of Impact	Likelihood	Consequence	Significance
Faunal Habitat and Diversity																
Secondary Grassland (edge effects)	3	2	3	2	5	**5**	**10**	**50 Low**	2	2	2	1	5	**4**	**8**	**32 Low**
Modified Habitat (edge effects)	2	1	2	2	5	**3**	**9**	**27 Low**	1	1	1	1	5	**2**	**7**	**14 Very Low**
Freshwater Habitat (edge effects)	3	3	3	3	5	**6**	**11**	**66 Medium-Low**	2	3	2	1	5	**5**	**8**	**40 Low**
Faunal SCC																
Secondary Grassland (edge effects)	2	2	2	2	5	**4**	**9**	**36 Low**	1	2	1	1	5	**3**	**7**	**21 Very Low**
Modified Habitat (edge effects)	1	1	1	2	5	**2**	**8**	**16 Very Low**	1	1	1	1	5	**2**	**7**	**14 Very Low**
Freshwater Habitat (edge effects)	3	3	3	2	5	**6**	**10**	**60 Medium-Low**	2	3	2	1	5	**5**	**8**	**40 Low**
Mitigation Measures																
➢ Edge effects arising from the proposed development, such as erosion and alien plant species proliferation, which may affect adjacent natural areas, need to be strictly managed, especially for the Freshwater Habitat; ➢ Rehabilitation efforts should be monitored continuously during the operational phase until natural processes restore ecological functioning and biodiversity in the surrounding and open space areas; ➢ No dumping of litter or waste must be allowed on-site or in the adjacent or surrounding habitats (i.e., Freshwater and Secondary Grassland Habitat); ➢ Local residents need to be educated and informed about local wildlife and fauna in the surrounding areas (notably the Freshwater and Secondary Grassland Habitat): ➢ No hunting/trapping or persecution of fauna must be allowed in the surrounding areas; ➢ The reactional use of the remining habitats within the wetland buffer must be limited as far as possible, especially pertaining to the potential presence of domestic pets (i.e., dogs); and ➢ In the event that reptiles or arachnids are encountered, harmless species should be carefully relocated by a suitably nominated community member. For larger and/or venomous snakes, a suitably trained professional should be contacted to assist in the relocation of the species. No reptiles or arachnids are to be killed or harmed.															

5.3 Impact Discussion

After the field assessment, it was determined that, although disturbed, the Freshwater Habitat still provides suitable foraging habitat for common faunal species and several potential faunal SCC, resulting in a **medium faunal SEI**. The Secondary Grassland Habitat supports a range of common faunal species and has the potential to be utilised by some SCC; however, historical and ongoing disturbance have substantially reduced habitat quality and ecological functionality. As a result, this habitat is assigned a **low faunal SEI**. The Modified Habitat obtained a **very low faunal SEI** as it is unlikely to support populations of faunal SCC, as only some SCC may occasionally forage within this highly disturbed and degraded habitat. Where SEI scores are higher, the impact from the proposed activities will be more significant and greater residual, negative impacts may be experienced. The required mitigation and management measures also differ depending on the SEI scores. Under the current proposed layout, all habitat units within the study area are affected. However, impacts on the Freshwater Habitat are limited to small sections required for road crossings, as the proponent has largely avoided construction within this habitat and its associated ecological buffer. However, due to the Freshwater Habitat and remaining Secondary Grassland located in the ecological buffer proximity to the development, these habitats may be exposed to indirect (edge effect) impacts, particularly if mitigation measures are not adhered to. Therefore, the impact significance (prior to mitigation) within the and adjacent to the footprint areas on faunal habitat diversity and SCC ranges from **medium-low** to **very low**. After mitigation measures are implemented, impacts can be suitably reduced, notably the potential impact extents. The potential for large-scale impacts on faunal ecology is unlikely if recommended mitigatory measures as stipulated in Section 5.2 are adhered to. The below sections provide a discussion of the impact assessment outcome in more detail.

5.3.1 Impact on Faunal Habitat and Diversity

Historic and ongoing disturbances have degraded habitats within the study area. Key impacts include grazing, the proliferation of AIPs, increased human activity, potential predation by domestic cats and dogs, and past developments. The surrounding urban landscape isolates these habitats, limiting faunal movement to species capable of navigating urban environments. As a result, the faunal community primarily consists of disturbance-tolerant and generalist species.

Although degraded, the Freshwater Habitat provides the greatest potential to support a more diverse faunal assemblage, particularly species dependent on open water and moist environments. For this reason, it is classified as having a higher sensitivity than other habitats within the study area. The Secondary Grassland Habitat has low sensitivity but still offers

marginal habitat and food resources for some common fauna. Despite its homogenous structure, smaller-bodied species may use this habitat for foraging and refuge. In contrast, the Modified Habitat offers limited resources and suitable conditions, resulting in low ecological significance for faunal species.

The proposed development will require vegetation clearing, which will lead to habitat loss and a corresponding reduction in faunal species diversity. Direct impacts from vegetation clearing and habitat transformation will be most pronounced during the construction and operational phases. Following mitigation, impacts on faunal ecology are expected to range from **medium-low** to **low** significance and will largely be confined to the construction footprint.

The proposed layout affects only small sections of the Freshwater Habitat at planned road crossings, while portions of the Secondary Grassland Habitat will remain within the ecological buffer of the Freshwater Habitat. However, edge effects from the development footprint may still affect the remaining Freshwater and Secondary Grassland Habitats and therefore require consideration. Although the Modified Habitat is a very low sensitivity and not considered important for fauna, some of this habitat will also remain within the buffer. Therefore, edge effects within this habitat must also be managed, as impacts such as AIP proliferation can spread between habitats if left unmitigated.

If the remaining Freshwater, Secondary Grassland, and Modified Habitats are not adequately protected from development encroachment, litter accumulation, AIP proliferation, high human activity, and other anthropogenic disturbances, impacts of **medium-low** to **low** significance are expected. However, effective implementation of the mitigation measures outlined in this report will reduce most impacts to **low** or **very low** significance.

5.3.2 Impacts on Faunal SCC

No faunal SCC were observed during the site assessment. However, eleven SCC have a high POC and eleven a medium POC within the study area, including three TOPS-listed species. Almost all of the SCC with a high POC are associated with the more sensitive Freshwater Habitat as many of these species are waterbirds such as *Anas erythrorhyncha* (Red-billed Teal, NT) and *Anas undulata* (Yellow-billed Duck), amongst others. The exception is the *Elanus caeruleus* (Black-winged Kite, NT) that can forage within the Secondary Grassland and Modified Habitats. All of these SCC are regarded as disturbance-tolerant, where they are able to use habitat in an anthropogenic landscape. While more specialist species are unlikely to use habitats within the study area, apart from potential opportunistic foraging, as they are more sensitive to human disturbance and are unlikely to occur in such an isolated area in an urban landscape. Some examples include: *Tyto capensis* (African Grass Owl, VU), *Asio capensis* (Marsh Owl, NT), and *Eupodotis senegalensis* (White-bellied Korhaan, VU).

Vegetation clearing and construction will cause habitat loss in the ornamental lawns and trees (a subunit of the Modified Habitat), the Secondary Grassland, and a small portion of the Freshwater Habitat. The greatest impacts will occur during the construction phase. Construction disturbance may temporarily displace SCC, but recolonisation into the remaining Freshwater and Grassland Habitat is expected if edge effects are effectively managed.

Without mitigation, impacts on SCC range from **medium–low** to **very low**. With strict implementation of mitigation measures, including phased clearing, rehabilitation, AIP control, and minimising the footprint within the Freshwater Habitat as much as is feasible, impact significance can be reduced. Overall, the proposed development is unlikely to affect SCC at a population or regional scale, as the habitats to be impacted are highly isolated, degraded, and of limited ecological functionality, and are therefore unlikely to support viable or self-sustaining SCC populations..

5.3.3 Probable Residual Impacts

Most of the habitats that will be affected by the proposed development are degraded and modified. However, even with extensive mitigation, residual impacts on the receiving faunal ecological environment will persist. The following points highlight the key residual impacts that have been identified:

- Continued loss of faunal habitat;
- Potential loss of faunal SCC including suitable habitat for such species;
- Edge effects such as further AIP proliferation;
- Altered faunal species diversity and abundance in and immediately adjacent the development footprint areas;
- Further habitat fragmentation within the landscape and reduction of movement corridors; and
- Disturbed areas not rehabilitated to an ecologically functioning state with resulting significant loss of faunal habitat, species diversity, and SCC likely to be permanent.

5.3.4 Cumulative Impacts

The proposed development is expected to result in the loss of faunal habitat and a reduction in the local abundance of fauna, leading to the displacement of current inhabitants toward surrounding natural areas. This could result in increased competition for resources with other faunal species already established in these natural habitats. Such competition may cause a decline in species diversity and abundance within the region.

The most significant threat to faunal ecology is the increased human presence during the construction and operational phases. This may lead to edge effects in the remaining

Freshwater and Secondary Grassland habitat after development such as the persecution of fauna, littering, and AIP proliferation which could negatively affect faunal communities that may have returned or persisted in the remaining habitat where no development is planned. Furthermore, edge effects can become more widespread if AIP proliferation and pollution occurs within the Freshwater Habitat, further contributing to cumulative pollution, as the Freshwater Habitat is a part of the Jukskei River system.

6 CONCLUSION

The impact assessment was undertaken on all aspects of faunal ecology deemed likely to be affected by the proposed development. The findings, results, observations, conclusions, and recommendations given in this report are based on the author's best scientific and professional knowledge as well as available information.

The proposed development will result in the loss of faunal habitat, primarily affecting several common and widespread species. Provided that all mitigation measures outlined in this report are implemented, impacts on potential SCC within the study area are not anticipated to be significant. Direct impacts associated with the development are expected to predominantly affect common occurring fauna. Indirect impacts on remaining natural habitats within the study area, particularly the Freshwater Habitat, must be carefully managed to prevent significant adverse effects. Faunal species displaced from the development footprint are likely to persist within the surrounding area, and therefore, no significant population-level impacts are expected. No reason can be seen why, with the current proposed layout, the development should not be authorised provided that mitigation measures listed in this report are adhered to.

It is the opinion of the ecologists that this study provides the relevant information required to implement Integrated Environmental Management (IEM) to ensure that the best long-term use of the ecological resources in the MRA will be made in support of the principle of sustainable development.

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APPENDIX A: Faunal Method of Assessment

It is important to note that due to the nature and habits of fauna, varied stages of life cycles, seasonal and temporal fluctuations along with other external factors, it is unlikely that all faunal species will have been recorded during the site assessment. The presence of anthropogenic activities associated with the study area may have an impact on faunal behaviour and in turn the rate of observations.

Mammals

Mammal species were recorded during the field assessment with the use of visual identification by actively searching/listening for individuals or the presence of spoor, calls and dung. Specific attention was given to mammal SCC listed on a regional and national level, as well as those identified by the Screening Tool. Desktop analysis of the study area was used to determine areas of higher value to mammal species and focus was placed within these areas during the field survey. Transects were walked throughout the study area to cover maximum ground within the given timeframe.

Reclusive/nocturnal mammals are unlikely to be directly observed in the field due to their natural habits and threat avoidance tactics. As such, camera traps were employed to capture some of these species in order to further saturate the species diversity/abundance data.

Avifauna

The Southern African Bird Atlas Project 2 database (http://sabap2.adu.org.za/) was compared with the recent field survey of avifaunal species identified in the study area. Field surveys were undertaken utilising direct observation and bird call identification techniques to accurately identify avifaunal species. Specific attention was given to avifaunal SCC listed on a regional and national level, as well as those identified by the Screening Tool.

Reptiles

Reptiles were identified during the field survey. Suitable applicable habitat areas (rocky outcrops and fallen dead trees) were inspected, and all reptiles encountered were identified. The data gathered during the assessment along with the habitat analysis provided an accurate indication of which reptile species are likely to occur in the study area. Specific attention was given to reptile SCC listed on a regional and national level, as well as those identified by the Screening Tool.

Amphibians

Identifying amphibian species is done by the use of direct visual identification along with call identification technique. Amphibian species flourish in and around wetland, riparian, and moist grassland areas. It is unlikely that all amphibian species will have been recorded during the site assessment, due to their cryptic nature and habits, varied stages of life cycles and seasonal and temporal fluctuations within the environment. The data gathered during the assessment along with the habitat analysis provided an accurate indication of which amphibian species are likely to occur within the study area as well as the surrounding area. Specific attention was given to amphibian SCC listed on a regional and national level, as well as those identified by the Screening Tool.

Invertebrates

Whilst conducting transects through the study area, all insect species visually observed were identified, and where possible photographs were taken.

It must be noted however that due to the cryptic nature and habits of insects, varied stages of life cycles and seasonal and temporal fluctuations within the environment, it is unlikely that all insect species will have been recorded during the site assessment period. Nevertheless, the data gathered during the assessment along with the habitat analysis provided an accurate indication of which species are likely to occur in the study area at the time of the survey. Specific attention was given to insect SCC listed on a regional and national level, as well as those identified by the Screening Tool.

Suitable applicable habitat areas (rocky outcrops, sandy areas and fallen dead trees) where spiders and scorpions are likely to reside were searched. Rocks were overturned and inspected for signs of these species. Specific attention was paid to searching for Mygalomorphae arachnids (Trapdoor and Baboon spiders) as well as potential SCC scorpions within the study area.

Faunal Species of Conservation Concern Assessment

The Probability of Occurrence (POC) for each faunal SCC was determined using the following four parameters:

- Species distribution;
- Habitat availability;
- Food availability; and
- Habitat disturbance.

The Probability of Occurrence (POC) for each faunal SCC is described:

- "**Confirmed'**: if observed during the survey;
- "**High**": if within the species' known distribution range and suitable habitat is available;
- "**Medium**": if either within the known distribution range of the species or if suitable habitat is present; or
- "**Low**": if the habitat is not suitable and falls outside the distribution range of the species.

The accuracy of the POC is based on the available knowledge about the species in question, with many of the species lacking in-depth habitat research.

Faunal Site Ecological Importance (SEI)

SEI is a function of the biodiversity importance (BI) of the receptor (e.g., species of conservation concern, the vegetation/fauna community or habitat type present on the site[3]) and its resilience to impacts (receptor resilience [RR]) as follows:

SEI = BI + RR

SEI can be derived from a simple matrix of BI and RR as follows:

Table A1: Matrix of CI and FI to determine BI.

Site Ecological Importance (SEI)		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 development is provided below.

Table A2: Guidelines for interpreting SEI in the context of the proposed development 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.

[3] Note that the habitat type may be independent of the vegetation community and that it may even be artificial, e.g., excavated rock quarries that provide crucial breeding habitat for cliff-nesting species such as Bald Ibis.

APPENDIX B: Faunal SCC

The tables below list the faunal Species of Conservation Concern for Gauteng:

Table B1: RDL Mammal Species for the Gauteng Province (GDARD 2014a).

Scientific Name	Common name	IUCN Status	GDARD Status	POC
Neamblysomus julianae	Juliana's Golden Mole	EN	VU	Low
Mystromys albicaudatus	White-tailed Mouse	EN	EN	Medium
Atelerix frontalis	Southern African Hedgehog	LC	NT	Medium
Aonyx capensis	Cape Clawless Otter	NT	-	Low
Hydrictis maculicollis	Spotted-necked Otter	NT	VU	Low
Miniopterus schreibersii	Scheiber's Long-Fingered Bat	NT	NT	Low
Myotis tricolor	Temminck's Hairy Bat	LC	NT	Low
Rhinolophus blasii	Blasius's/Peak-Saddle Horseshoe Bat	LC	VU	Low
Rhinolophus clivosus	Geoffroy's Horseshoe	LC	NT	Low
Rhinolophus darlingi	Darling's Horseshoe Bat	LC	NT	Low
Rhinolophus hildebrandtii	Hildebrandt's Horseshoe Bat	LC	NT	Low

VU = Vulnerable, EN = Endangered, NT = Near Threatened, LC= Least Concern

Table B2: RDL Avifaunal Species for the Gauteng Province (GDARD 2014a).

Scientific Name	Common name	IUCN Status	GDARD Status	POC
Anthropoides paradiseus	Blue Crane	EN	VU	Low
Circus ranivorus	African Marsh Harrier	LC	VU	Low
Tyto capensis	African Grass-Owl	LC	VU	Medium
Sagittarius serpentarius	Secretary bird	VU	NT	Low
Oxyura maccoa	Maccoa Duck	VU	VU	Low
Mycteria ibis	Yellow-billed Stork	LC	-	Low
Phoenicopterus minor	Lesser Flamingo	NT	-	Low
Phoenicopterus roseus	Greater Flamingo	LC	-	Low
Eupodotis caerulescens	Blue Korhaan	NT	NT	Low
Eupodotis senegalensis	White-Bellied Korhaan	LC	VU	Low
Alcedo semitorquata	Half-collared Kingfisher	LC	NT	Low
Mirafra cheniana	Melodious Lark	LC	NT	Low

VU = Vulnerable, NT = Near Threatened, LC = Least Concern, EN = Endangered

Table B3: RDL Invertebrates Species for the Gauteng Province (GDARD 2014a)

Scientific Name	Common name	IUCN Status	GDARD Status	POC
Lepidochrysops praeterita	Highveld Blue Butterfly	EN	VU	Low
Chrysoritis aureus	Golden Opel/Highveld Copper	NYBA	VU	Low
Ichnestoma stobbiai	Stobbia's Fruit Chafer Beetle	NYBA	VU	Medium
Aloeides dentatis	Roodepoort Copper Butterfly	VU	VU	Low

EN = Endangered, VU = Vulnerable, NYBA = Not yet been assessed

Table B4: RDL Reptile Species for the Gauteng Province (GDARD 2014a)

Scientific Name	Common Name	IUCN Status	GDARD Status	POC
Homoroselaps dorsalis	Striped Harlequin Snake	NT	NT	Medium

NT = Neat Threatened

Table B5: Other RDL Species historically recorded within the study area's QDS: 2627DB, according to GDARD and the DFFE screening tool (*)

Scientific Name	Common Name	Status	Sensitivity	POC
Orachrysops mijburghi	Mijburgh's Blue	EN	Medium	Low
Lepidochrysops procera	Potchefstroom Blue	Rare	Medium	Low
Crocidura maquassiensis	Makwassie Musk Shrew	VU	Medium	Medium
Ourebia ourebi	Oribi	EN	Medium	Low
Hydrictis maculicollis	Spotted-Necked Otter	VU	Medium	Low

EN = Endangered; VU = Vulnerable

Table B6: Avifaunal Species for the pentads: 2555_2805 and 2555_2800, that include and adjoin the study area, within the QDS 2627DB

Pentads	SABAP2 link
2555_2805	https://sabap2.birdmap.africa/coverage/pentad/2555_2805
2555_2800	https://sabap2.birdmap.africa/coverage/pentad/2555_2800

APPENDIX C: Faunal Species List

Table C1: Mammal species recorded during the field assessment.

Scientific Name	Common Name	Status
Sylvicapra grimmia	Common Duiker	LC
Rattus rattus	Black Rat	LC
Lepus saxatilis	Scrub hare	LC

LC – Least Concern

Table C2: Avifaunal species recorded during the field assessment.

Scientific Name	Common name	Status
Threskiornis aethiopicus	African Sacred Ibis	LC
Vanellus armatus	Blacksmith Lapwing	LC
Vanellus senegallus	African Wattled Lapwing	LC
Dessonornis caffer	Cape Robin-Chat	LC
Streptopelia capicola	Cape Turtle Dove	LC
Lanius collaris	Common Fiscal	LC
Acridotheres tristis	Common Myna	LC
Pycnonotus tricolor	Dark-capped Bulbul	LC
Alopochen aegyptiaca	Egyptian Goose	LC
Bostrychia hagedash	Hadada Ibis	LC
Numida meleagris	Helmeted Guineafowl	LC
Halcyon albiventris	Brown-hooded Kingfisher	LC
Streptopelia senegalensis	Laughing Dove	LC
Crinifer concolor	Grey Go-away-bird	LC
Alexandrinus krameri	Rose-ringed Parakeet	LC
Ploceus velatus	Southern Masked Weaver	LC
Lophaetus occipitalis	Long Crested Eagle	LC
Amblyospiza albifrons	Thick-billed Weaver	LC

LC = Least Concern

Table C3: General invertebrate recorded during the field assessment.

Scientific Name	Common Name	Status
Eurema brigitta	Broad-bordered Grass Yellow	NYBA
Gryllus bimaculatus	Common Garden Cricket	NYBA
Musca domestica	House Fly	NYBA
Anoplolepis custodiens	Pugnacious Ant	NYBA
Diplazon laetatorius	Parasitoid Wasp	LC
Poeciloblatta angusta	Cockroach spp.	NYBA
Apis mellifera	Honeybee	DD

LC = Least Concern, NYBA = Not yet been assessed by the IUCN.