



Terrestrial Animal Species Impact Assessment

Proposed Infrastructure Development and Upgrades within the Great Fish River Nature Reserve, Eastern Cape

Prepared for:

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1. Declaration of independence

I, Roy de Kock as duly authorized representative of Blue Leaf Environmental (Pty) Ltd, hereby confirm my independence (as well as that of BlueLeaf) as a specialist and declare that neither I nor BlueLeaf have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of which JG Africa was appointed as environmental assessment practitioner in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), other than fair remuneration for worked performed, specifically in connection with the Environmental Impact Assessment for the proposed Great Fish River Nature Reserve Development. I further declare that I am confident in the results of the studies undertaken and conclusions drawn because of it – as is described in this report.



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2. Expertise of specialist

Roy has over 15 years' experience in environmental consulting and specialist services in the Eastern Cape. Various projects throughout South Africa as well as Africa at large have also been undertaken. Projects include baseline studies, impact assessments and compliance auditing for various large-scale projects including numerous wind farms, roads (National and Provincial), and infrastructure development projects. Roy has also conducted numerous specialist studies including, but not limited to, Ecological and Botanical assessments, Biodiversity studies, Plant and Animal Search and Rescue, Fauna and Flora permits, Aquatic Assessments, Agricultural and Soil Assessments and Environmental and venomous animals training workshops.

Roy holds a BSc Honours in Geology and an MSc in Botany from the Nelson Mandela University in Port Elizabeth. He is currently busy with his PhD (Doctorate degree) in Botany and Soil Science. He has over 15 years' experience in the environmental consulting focusing on Ecological and Agricultural Assessments, Geological and Geotechnical analysis, Environmental Management Plans, mining applications and various environmental impact studies.

Roy is a registered as a professional natural scientist (Pri.Sci.Nat.) with SACNASP (Registration nr: 400216/16).

This study complies with the requirements as listed in the Gazetted protocols for a faunal specialist assessment (GN. R 320 of 2020) and minimum report content requirements and the Ecosystem Environmental Assessment Guideline.

Projects Roy worked on in the last 3 years include:

- Lukhozi Retreat Housing Development Ecological Assessment, Muizenberg, Western Cape
- Lukhozi Vrygrond Housing Development Ecological Assessment, Muizenberg, Western Cape
- SANRAL Utentwe Bridge and various road upgrades, Lusikisiki, Eastern Cape
- Enviroworks Addo Elephant National Park Development Ecological Assessment, Eastern Cape
- Habitat Link Wolwerton Farm Plant and Animal Search and Rescue, Sunland, Eastern Cape
- Ilifa Ecological Impact Assessment of a road between Koster and Rustenburg, Northwest
- Knight Piesoldt Ecological Assessment of the N1 from Louis Trichardt to Musina, Limpopo
- Lwhethu Vegetation study for a new mine outside King Williams Town, Eastern Cape Province
- Vegetation Assessment for a proposed new housing expansion, Robberg, Western Cape.
- UWP Consulting Ecological Assessment of the R63 between Komga and the N9 Bridge, Eastern Cape Province

3. Introduction

The Eastern Cape Parks and Tourism Agency (ECPTA) is undertaking the upgrade of infrastructure within the Great Fish River Nature Reserve (GFRNR) in the Eastern Cape Province (Figure 3.1).

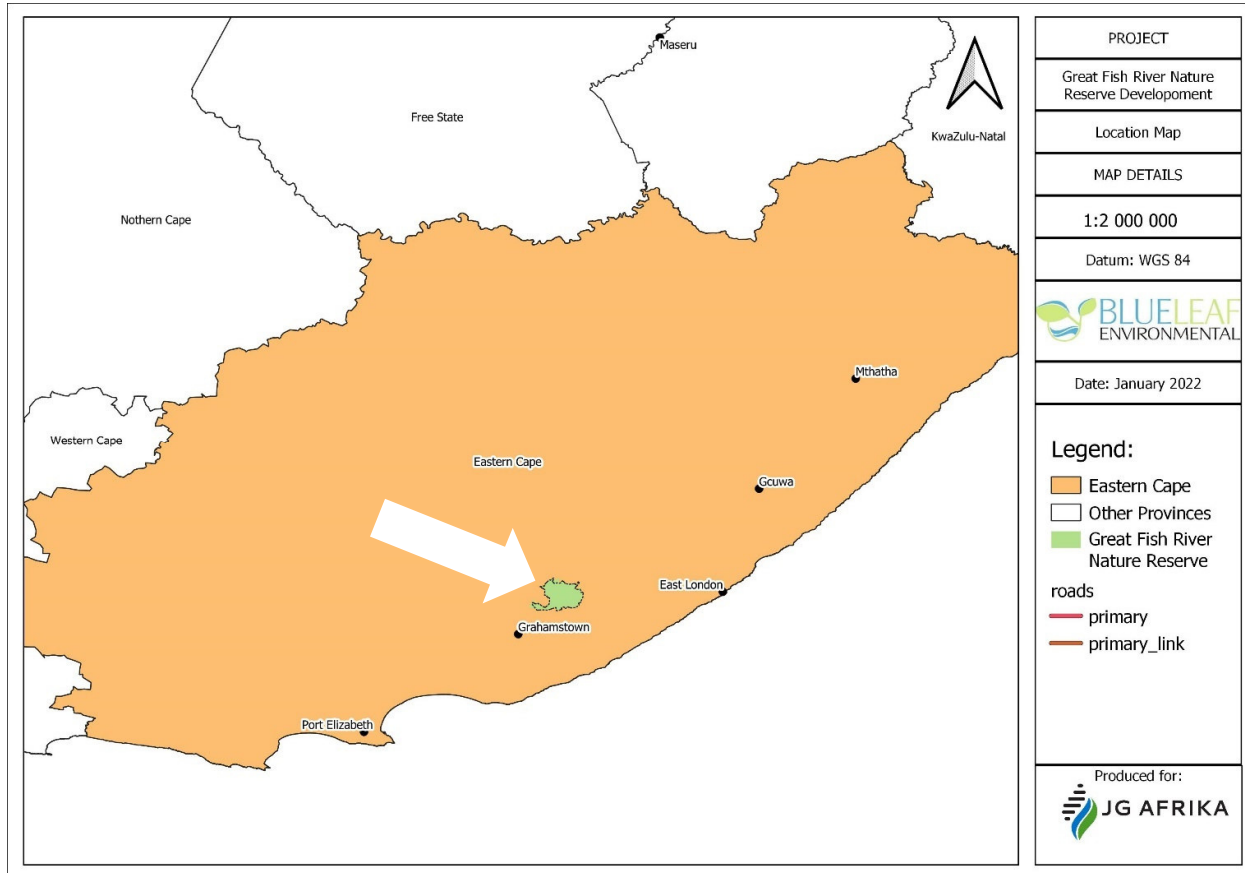


Figure 3.1: Location of the Great Fish River Nature Reserve

JG Africa has been appointed to undertake a Basic Environmental Assessment on behalf of the Proponent. The DFFE Screening Report that JG Africa generated specified specialist studies to be conducted as part of the BAR process. The Screening Report further indicated that Animal Species Theme Sensitivity as **HIGH SENSITIVITY**. BlueLeaf Environmental (Pty) Ltd (BlueLeaf) was appointed to conduct a full Animal Species Impact Assessment as part of the BAR for the proposed development of the GFRNR Project in the Eastern Cape Province. This report addresses the Animal Species Impact Assessment theme as listed in the Screening Report.

3.1 Project description

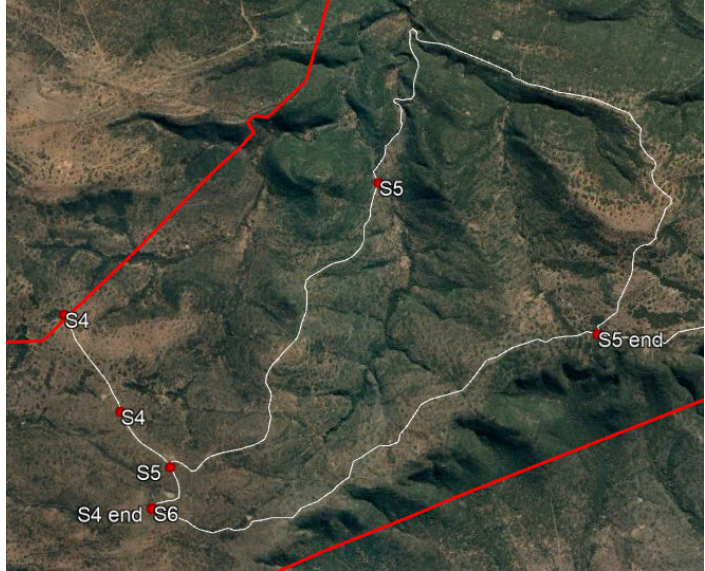
The following infrastructure development within the Great Fish River Nature Reserve is proposed Refer to Figure 3.2 for layout orientations:

- Construction of Ranger and Manager houses.
 - Various new houses will be constructed in four different clusters throughout the GFNR
- Various gravel roads and tracks upgrade.
 - All road upgrades are numbered as followed:

Road section S1, S2 and S3






Road section S4 and S5



Road section S6, S7, S9 and S10



<p>Road section S11</p>	
<p>Road sections S12 and S13</p>	
<p>Road section S15</p>	

<p>Road section S16</p>	
<p>Road sections S17, S18, S19, S20, S21, S22 and S23</p>	
<p>Road sections S24, S25 and S26</p>	

- Construction of new culverts and upgrading of existing culverts where roads cross streams and drainage courses throughout the GFRNR.
- Various new gabion constructions throughout the GFRNR.
- Upgrade of three dams.
- Development of a fuel storage site near the existing Kamadalo Runway.
- Extension of the existing Kamadalo Runway.

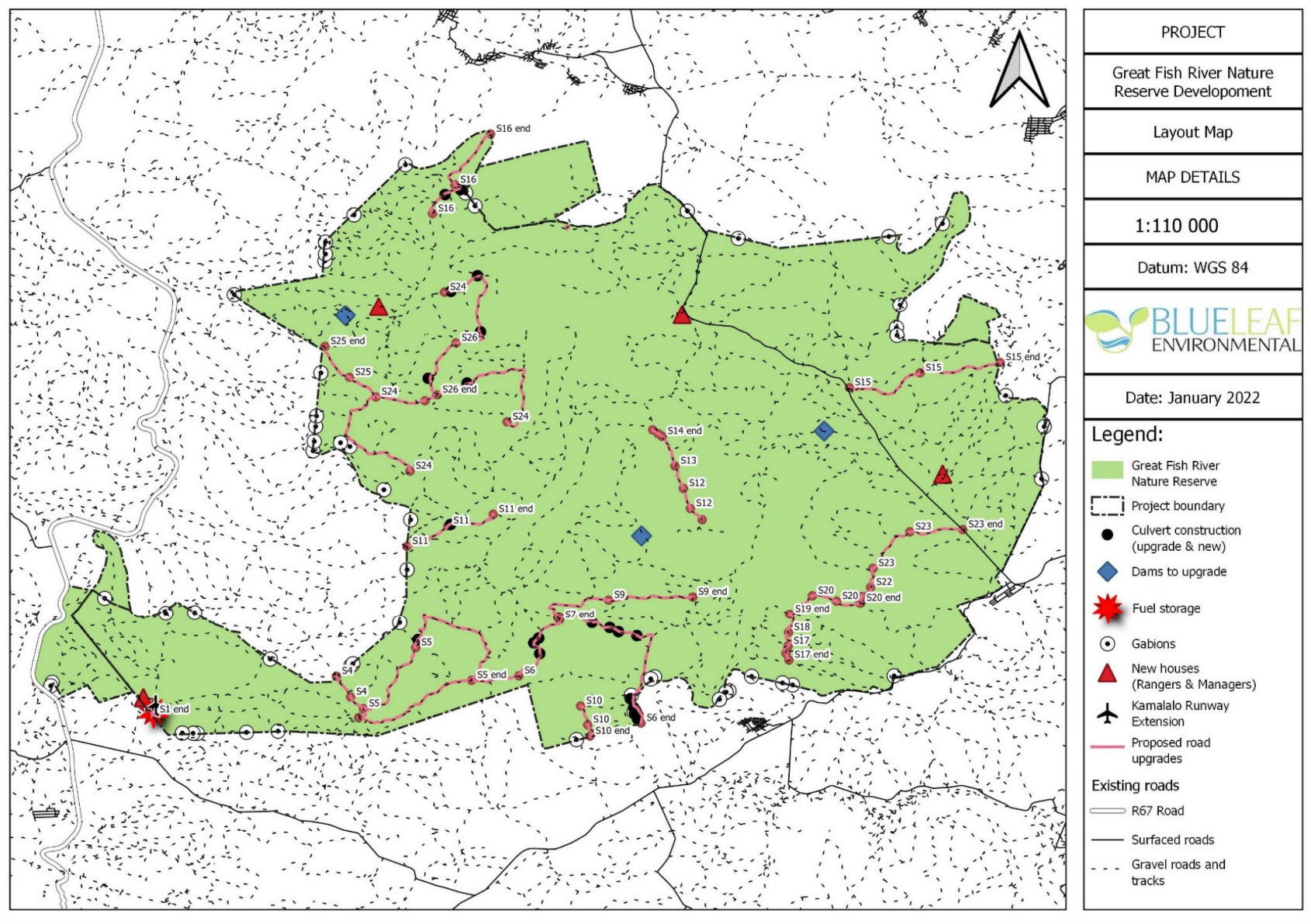


Figure 3.2: Layout of the various proposed infrastructures within the GFRNR

3.2 Legislative context

The following legislation is directly relevant when assessing the ecological environment relating to the proposed GFRNR Development Project in the Eastern Cape Province:

National Environmental Management Act (NEMA) (107 of 1998; as amended), and the Specialist Assessment Protocols (GNR 320 of 2020):

The contents of this specialist report comply with the legislated requirements as described in the following specialist assessment protocol as listed in the project’s Screening Report:

- Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Animal Species

National Environmental Management Act (NEMA) (107 of 1998; as amended), and the EIA regulations (as amended):

Although the Specialist Assessment Protocol (as listed above) supersedes this legislative requirement, the contents of this specialist report still comply with the legislated requirements as described in Appendix 6 of the National Environmental Management Act (No 107 of 1998; NEMA) Regulations of 2014 and updated in 2017 (GN R. 326 of 2017).

Other national legislation

Other national legislation relevant to this project include:

Title of legislation or guideline	Administering authority	Applicability to the project
National Environmental Management Act (NEMA) Environmental Impact Assessment (EIA) Regulations 2014 as amended (Act No. 107 of 1998)	National Department of Forestry, Fisheries and Environment (DFFE)	<i>The activity triggers activities listed in NEMA EIA Regulations GN R. 327, GN R.325 and GN R. 324.</i>
National Water Act, 1998 (Act No. 36 of 1998)	Department of Water & Sanitation (DWS)	<i>Infrastructure may impact on existing surface water drainage systems. This impact is only mentioned in this report and NOT discussed in detail.</i>
National Environment Management: Biodiversity Act (NEMBA) (No. 10 of 2004)	DEDEAT	The proposed development must: <ul style="list-style-type: none"> • Conserve threatened ecosystems and protect and promote biodiversity. • Assess the impacts of the proposed development on threatened ecosystems. • No protected species may be removed or damaged without a permit; and • The proposed site must be cleared of alien vegetation using appropriate means.
National Forest Act (84 of 1998)	Provincial Department of Forestry	Requires that a permit be obtained should any forests or protected trees be removed during the construction phase of the project.

Relevant Provincial legislation include:

Title of legislation or guideline	Administering authority	Applicability to the project
Eastern Cape Biodiversity Conservation plan (ECBCP)	DEDEAT	Listing of critical biodiversity areas and ecological support areas within the study site. The discussion in this report is based on vegetation type, connectivity, habitat condition and presence of Red List Threatened species.
Nature and Environmental Conservation Ordinance (No.19 of 1974)	DEDEAT	Listing of protected plants and animals. Permits are required for removal and replanting any protected plants.

3.3 Alternatives

No site alternatives or layout are proposed.

3.4 Public consultation

No consultation requirements were identified during the drafting of this specialist report. The findings of this report can be presented to stakeholders and I&APs as part of the BAR Public Participation Process (PPP).

No comments were received to date on this report.

3.5 Objectives

The objectives of the project are listed below. These objectives are based on the requirements of the specialist protocol as listed in the Screening Report:

- Describe both the existing area as well as the area prior to construction in terms of its current faunal characteristics and the general sensitivity of these components to change.
- Confirm if there are any outright fatal flaws to the establishment of the proposal at its current location from a faunal perspective.
- Map all existing areas to be directly affected by the proposals in terms of its current and previous faunal sensitivity (constraints).
- Map all 'No-Go' areas.
- Describe the likely scope, scale, and significance of impacts (positive and negative) on faunal components of the area associated with the construction of the proposals.
- Make recommendations on the scope of any mitigation measures that may be applied during construction to avoid/reduce the significance of the identified construction-related impacts.
- Describe the likely scope, scale, and significance of impacts (positive or negative) on the faunal components associated with the operation or use of the proposals.
- Make recommendations on the scope of any mitigation measures that may be applied to avoid/reduce the significance of the operations-related impacts. These mitigation measures could also be design recommendations as well as operational controls, monitoring programmes, management procedures and the like.
- It will be particularly important to identify any rehabilitation measures that can be reasonably applied on the completion of the construction works.

- Broadly comment on the cumulative faunal impacts (positive or negative) associated with the construction and/or operation of the proposals.

It should be noted that only datasets and base data relevant to the study area and affected environmental features are discussed below.

3.6 Assumptions and limitations

- The report is based on currently available information and, as a result, limited by the information provided by the Client.
- The report is limited by seasonality as the presented data will be based on a single site survey of animal species conducted within a single season (summer) of a single year (2021).

4. Approach and methodology

The aim of this assessment is to identify areas of faunal importance and to evaluate these in terms of their conservation importance. To do so, the faunal sensitivity of the area is assessed and potential animal Species of Conservation Concern (SCC) that may occur in habitats present in the area are identified. To a large extent, the condition and sensitivity of the vegetation will also determine areas with high biodiversity.

The study site and surrounding areas were assessed using a two-phased approach. Firstly, a desktop assessment of the site was conducted in terms of current faunal programmes and plans (listed in section 4.1 below).

Further to the above, a site visit was conducted in November 2021. The site visit served to inform potential impacts of the proposed project and how significantly it would impact on the surrounding terrestrial faunal environment.

4.1 Species classification

To identify faunal species that potentially occur naturally in the project area firstly required an understanding of the broad faunal habitats in the area. Faunal habitats were identified according to various biological and environmental characteristics, including vegetation type (SANBI VegMap; 2018), the degree of transformation of the vegetation, geology and soil type, and topography.

The potential occurrence of vertebrate fauna (amphibians, reptiles, mammals, and birds) within the project area was determined according to the habitat characteristics of the area, and the species' habitat requirements. Published literature and online resources that are continuously updated with new species observations were consulted to compile lists of fauna, including:

- Du Preez & Carruthers (2017), Frog Atlas of Southern Africa (FrogMap) for amphibians.
- Alexander & Marais (2007), Reptile Atlas of Southern Africa (ReptileMap1) for reptiles.
- Skinner & Chimimba (2005), Mammal Atlas of Southern Africa (MammalMap1) for mammals.
- Southern African Bird Atlas Project 2 (SABAP2) for birds (Harrison et al. 1997).
- iNaturalist, and
- Global Biodiversity Information Facility (GBIF)

Species of Conservation Concern (SCC) were limited to threatened and endemic fauna, and were defined to include:

- Fauna with their distribution ranges limited to the Eastern Cape Province.
- Red Data species identified using the IUCN Red List of Threatened Species.
- Red Data species identified using the Red List of South African Species. This includes all species that are assessed according to the IUCN Red List Criteria as Critically Endangered, Endangered, Vulnerable, Near Threatened, Rare, Extremely Rare, or Data Deficient. Listings were corroborated with data from the South African amphibian (Measey 2011), reptile (Bates et al. 2013), mammal (Child et al. 2016), and bird (Taylor et al. 2015) conservation assessments.
- Fauna listed in terms of Section 56 of the National Environmental Management: Biodiversity Act, 2004 (NEMBA) (Act 10 of 2004, as amended), and regulated by the Threatened or Protected Species (TOPS) Regulations, 2007. This includes species that are Critically Endangered, Endangered, Vulnerable, and Protected.

In addition to animal SCC, the following animals were also identified:

- Fauna protected by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).
- Fauna listed in terms of the Nature and Environmental Conservation Ordinance (NECO) (No 19 of 1974).

The inclusion of faunal species on CITES Appendices (I–III) and NECO Schedules (1–2) are not necessarily equivalent to the species’ conservation status. Many common species are pragmatically included on these lists even though their conservation status may not be of demonstrated concern. A permit is however required for the removal of species that occur on CITES and NECO lists.

Several sensitive faunal species, identified by the Department of Forestry, Fisheries, and the Environment’s (DFFE) National Web-based Environmental Screening Tool as important, required specific consideration. These species include:

Sensitivity	Feature(s)
High	Aves-Neotis denhami
High	Mammalia-Hippopotamus amphibius
High	Mammalia-Loxodonta africana
High	Mammalia-Redunca fulvorufula fulvorufula
High	Aves-Campethera notata
High	Aves-Aquila verreauxii
Medium	Mammalia-Hydrictris maculicollis
Medium	Sensitive species 5
Medium	Aves-Circus maurus
Medium	Aves-Campethera notata
Medium	Aves-Neotis denhami
Medium	Aves-Aquila verreauxii

The names of some of the species have been omitted, but these were made available to the Specialist and EAP. These names have been withheld as these species may be prone to illegal harvesting and must be protected.

Because the likelihood of detecting any of the above listed SCC during a site investigation is extremely low (even with optimal search methods and during optimal seasonal sampling; SANBI 2020) the precautionary principle was therefore applied in the following way during the assessment for species habitat suitability in the project area:

1. If the Screening Tool predicts the occurrence of the species in the vicinity of the project area, and
2. Potentially suitable habitat exists in relatively proximity of known locations for the species, then the species is assumed to be present.

The following criteria were evaluated during the site visit to assess habitat suitability for these species:

1. Vegetation type and cover,

2. Geology and soil type,
3. Rock cover, and
4. Topography

Sensitive habitats were identified as those habitats that are vulnerable to disturbances and potentially support SCC in the project area.

On 17 to 19 November 2021 (late spring) a visit to the project area was conducted to:

1. Assess the micro-positioning of infrastructure,
2. Confirm the occurrence of broad faunal habitats,
3. Identify broad habitats that could not be identified as part of an initial desktop analysis,
4. Note any evidence (e.g., sightings, presence of spoor, dung, burrow systems, and nesting material) of faunal occurrences. To avoid the influence of false negatives over the short site visit, these observations were only used to demonstrate the diversity of fauna that potentially occur.
5. Assess the extent of current threats (not project related) on faunal communities (e.g., evidence for direct exploitation, habitat transformation, etc.).

4.2 Sensitivity assessment

Section 6 of this report identifies and maps zones of high, moderate, and low faunal sensitivity within the study area.

4.3 Impact Assessment

The impacts that may result from the planning and design phase, construction phase, operation phase of the proposed GFRNR development and was assessed according to several criteria to arrive at an overall significance rating. The criteria used were as follows (based on DEAT 2002 - Impact Significance, IEM Information Series 5; and DEAT 2006 - Assessment of Alternatives and Impacts in support of the EIA Regulations, IEM Guideline Series 5):

Table 4.1: Criteria used in determining significance ratings to potential impacts

CRITERIA	DESCRIPTION OF ELEMENTS THAT ARE CENTRAL TO EACH ISSUE
The criteria below describe the anticipated impact on the identified environmental aspect.	
Nature and consequence of impact	This is an appraisal/evaluation of the type of effect the construction, operation and/or maintenance of a development would have on the affected environment. It should describe the impact, as well as the consequences of the impact on the specific environmental aspect. This description should include what is to be affected and how.
Cumulative Impacts	Cumulative impacts result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present, or reasonably foreseeable future activities. Cumulative impacts can occur from the collective impacts of individual minor actions over a period and can include both direct and indirect impacts.
Indirect Impacts	Indirect impacts are not a direct result of the project but are often produced away from or because of a complex impact pathway related to the project.
Residual Impacts	Any impact, or part of an impact remaining after mitigation and management measures have been applied.
The following criteria is used to determine the significance of an impact using the following formula: <i>(Extent + Duration + Intensity) x Probability = Impact Significance</i>	
Extent of the	NONE The impact will not have an area of effect

CRITERIA	DESCRIPTION OF ELEMENTS THAT ARE CENTRAL TO EACH ISSUE	
Impact	SITE SPECIFIC	Extends only as far as the activity; or Limited to the site and its immediate surroundings
	LOCAL	Extends beyond the site and its immediate surroundings to within 5km of the site
	REGIONAL	Will have an impact on the region/province beyond 5km of the site
	NATIONAL	Will have an impact on a national scale - particularly if an ecosystem or species of national significance is affected
	INTERNATIONAL	Will have an impact across international borders or will impact on an ecosystem or species of international significance.
Duration of impact	IMMEDIATE	The impact will not have any lasting effects
	SHORT TERM	0 – 2 years
	MEDIUM TERM	2 – 20 years
	LONG TERM	>20 years - the impact will cease after the operational or working life of the activity, either due to natural process or by human intervention
	PERMANENT	Mitigation or moderation by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient or temporary
Intensity of impact (Positive or negative)	ZERO	Natural, cultural, and social functions and processes are not affected
	VERY LOW	Natural, cultural, or social functions or processes would be negligibly altered
	LOW	Natural, cultural, or social functions or processes would be able to continue, although in a slightly modified way
	MEDIUM	Natural, cultural, or social functions or processes would be able to continue, although in a modified way
	HIGH	Natural, cultural, or social functions or processes would be substantially altered to the extent that they temporarily cease
	VERY HIGH	Natural, cultural, or social functions or processes are altered to the extent that they would permanently cease
Probability of impact occurring	IMPROBABLE	< 5% chance of the impact occurring
	LOW	5 – 25 % chance of the impact occurring
	MEDIUM	Probable – 25 – 75 % chance of the impact occurring
	HIGH	Highly Probable – 75 – 99 % chance of the impact occurring
	DEFINITE	Impact will occur regardless of any prevention measures
The criteria below are used in addition to the criteria used for impact significance determination to further describe the impact, however, these criteria are not used in the calculation.		
Degree of Reversibility	HIGH	Impact can be reversed with mitigation
	MEDIUM	Impact may be reversed, but residual impacts are evident
	LOW	Impact cannot be reversed despite mitigation measures
Irreplaceability of a resource	LOW	Impact will result in a partial loss of a resource; however, natural, cultural, and social functions will not be affected
	MEDIUM	Impact will result in a partial loss of a resource
	HIGH	Impact will result in the irreplaceable loss of a resource
Mitigatory potential of impacts	LOW	Little or no mechanism to mitigate negative impacts
	MEDIUM	Potential to mitigate negative impacts. Implementation of mitigation measures will reduce some negative effects
	HIGH	High potential to mitigate negative impacts. Mitigation will result in negative impacts becoming insignificant

Based on a synthesis or combination of the information contained in the above-described criteria; and drawing on legal policies and guidelines as well as the status of the impacts and potential risks, the overall significance were determined as follows:

Table 4.2: Definition of significance ratings (positive and negative)

Significance	Description
Very high (VH)	An impact of very high significance will mean that the project cannot proceed, and that impacts are irreversible, regardless of available mitigation options.
High (H)	An impact of high significance which could influence a decision about whether to proceed with the proposed project, regardless of available mitigation options.
Medium-high (MH)	If left unmanaged, an impact of medium-high significance could influence a decision about whether to proceed with a proposed project. Mitigation options should be re-evaluated at.
Medium (M)	If left unmanaged, an impact of medium significance could influence a decision about whether to proceed with a proposed project.
Low-Medium (LM)	An impact of Low-medium significance would have some effect during decision making about whether to proceed with a proposed project, however, mitigation for this type of impact would be minimal.
Low (L)	An impact of low significance would have little effect on decision making and only a small influence on project design or alternative motivation.
Very low (VL)	An impact of very low significance is likely to contribute to positive decisions about whether to proceed with the project. It will have little effect and is unlikely to have an influence on project design or alternative motivation.
Negligible / zero impact	There will be no impact, or any impact identified can be viewed as negligible. This rating will be unlikely to have an influence on project design or alternative motivation.
Positive impact (+)	A positive impact is likely to result in a positive consequence/effect and is likely to contribute to positive decisions about whether to proceed with the project.

5. Site assessment

This chapter compares baseline information with field survey data collected. A site visit was conducted in November 2021. Data collected during the site visit was then compared to existing literature on the site.

5.1 Vegetation

The South African National Biodiversity Institute (SANBI) vegetation map (called the VegMap; 2018) lists various vegetation types occurring within the GFRNR areas. Two biomes namely Savanna and Albany Thicket meet within the GFRNR.

Albany thicket is a dense, woody, semi-succulent and thorny vegetation type of average height (2-3 m) and relatively impenetrable in an unaltered condition. The following thicket vegetation units occur within the study site. The proposed development activities within each vegetation unit are also listed. Refer to Figure 5.1 below for layout orientation:

Albany Thicket Vegetation Units	Activities proposed within the Vegetation unit
<p>Crossroads Grassland Thicket</p> <p>Thicket clumps are typical of Fish Thicket with sneezewood (<i>Ptaeroxylon obliquum</i>), katdoring (<i>Scutia myrtina</i>) and the emergent kiepersol (<i>Cussonia spicata</i>) as dominants. The rooigras - (<i>Themeda triandra</i>) dominated grassland matrix lacks sweet thorn (<i>Vachelia karroo</i>) when in a pristine condition.</p>	<ul style="list-style-type: none"> ➤ Road section S23. ➤ Two of the Ranger and Manager house clusters (merely an expansion of an existing cluster of houses). ➤ Small portion of the start of road section S15.
<p>Doubledrift Karroid Thicket</p> <p>Thicket clumps consist of species typical of Fish Valley Thicket, such as katdoring (<i>Scutia myrtina</i>); and the matrix is a mosaic of succulent karoo (<i>Pteronia incana</i> and <i>Aloe tenuior</i>) and grassland (<i>Themeda triandra</i>).</p>	<ul style="list-style-type: none"> ➤ Numerous gabion upgrades along the property boundary. ➤ Small portion of the start of road section 23. ➤ Small portion of the start of road section 22. ➤ One of the three dam upgrades. ➤ Most of road section S15.
<p>Fish Arid Thicket</p> <p>Grows in the driest parts of the thicket biome, usually where the rainfall is less than 300 mm yr⁻¹. This thicket is much sparser in cover than the other types (it is often easy to walk between the thicket clumps) and is much shorter, seldom exceeding 3m in height. Universally common plants are gwarrie (<i>Euclea undulata</i>), spekboom (<i>Portulacaria afra</i>), pendoring (<i>Gymnosporia polyacantha</i>) and species of noors (<i>Euphorbia coerulescens</i> and <i>E. bothae</i>)</p>	<ul style="list-style-type: none"> ➤ Numerous gabion upgrades along the property boundary. ➤ One of the Ranger and Manager house clusters (merely an expansion of an existing cluster of houses). ➤ Road section S1. ➤ Road section S2. ➤ Road section S3. ➤ Development of a fuel storage site near the existing Kamalalo Runway. ➤ Extension of the existing Kamalalo Runway.
<p>Fish Mesic Thicket</p> <p>Denser forest like thicket occurring where there is abundant water.</p>	<ul style="list-style-type: none"> ➤ Road section S22.
<p>Fish Valley Thicket</p> <p>Woody trees such as doppruim (<i>Pappea capensis</i>) and gwarrie (<i>Euclea undulata</i>) are abundant, along with</p>	<ul style="list-style-type: none"> ➤ Road section S4, S5, S6 and S7. ➤ Road section S9, S10, S11, S12 and S13. ➤ Road section S15, S16, S17, S18, S19, S20 and S21. ➤ Road sections S24, S25 and S26.

Albany Thicket Vegetation Units	Activities proposed within the Vegetation unit
shrubs such as needlebush (<i>Azima tetraantha</i>), but tree euphorbias (<i>Euphorbia tetragona</i>) are sparse. This unit gives way rapidly to other thicket units in areas where fire can reach, while grazing impacts this unit so much that it appears nowadays to be as a mosaic thicket type.	<ul style="list-style-type: none"> ➤ Two of the three dam upgrades. ➤ Numerous gabion upgrades along the property boundary ➤ Various culvert upgrades

Most **Savanna** has an herbaceous layer usually dominated by grass species and a discontinuous to sometimes very open tree layer. Savanna grasslands may grade into tree savanna, shrub savanna, savanna woodland and savanna parkland. Only one savanna type vegetation unit occurs within the GFNR, namely Bhischo Thornveld.

Savanna Vegetation Unit	Activities proposed within the Vegetation unit
<p><u>Bhischo Thornveld</u></p> <p>Is a sub-escarpment type savanna that occurs on undulating to moderately steep slopes, sometimes in shallow, incised drainage valleys. The open savanna component is characterized by small trees of <i>Vachellia natalitia</i> with a short to medium, dense, sour grassy understory, usually dominated by <i>Themeda triandra</i> when in good condition. A diversity of other woody species also occurs, often increasing under conditions of overgrazing.</p>	<ul style="list-style-type: none"> ➤ A Single gabion upgrades along the property boundary

All these vegetation units are in pristine to near pristine conditions on site and carries a high probability for high biodiversity faunal habitats occurring. Various common as well as sensitive faunal species may occur on site. The GFRNR is a proclaimed protected area (according to the National Environmental Management: Protected Areas Act) which increases the probability for high biodiversity faunal habitats and a variety of faunal species.

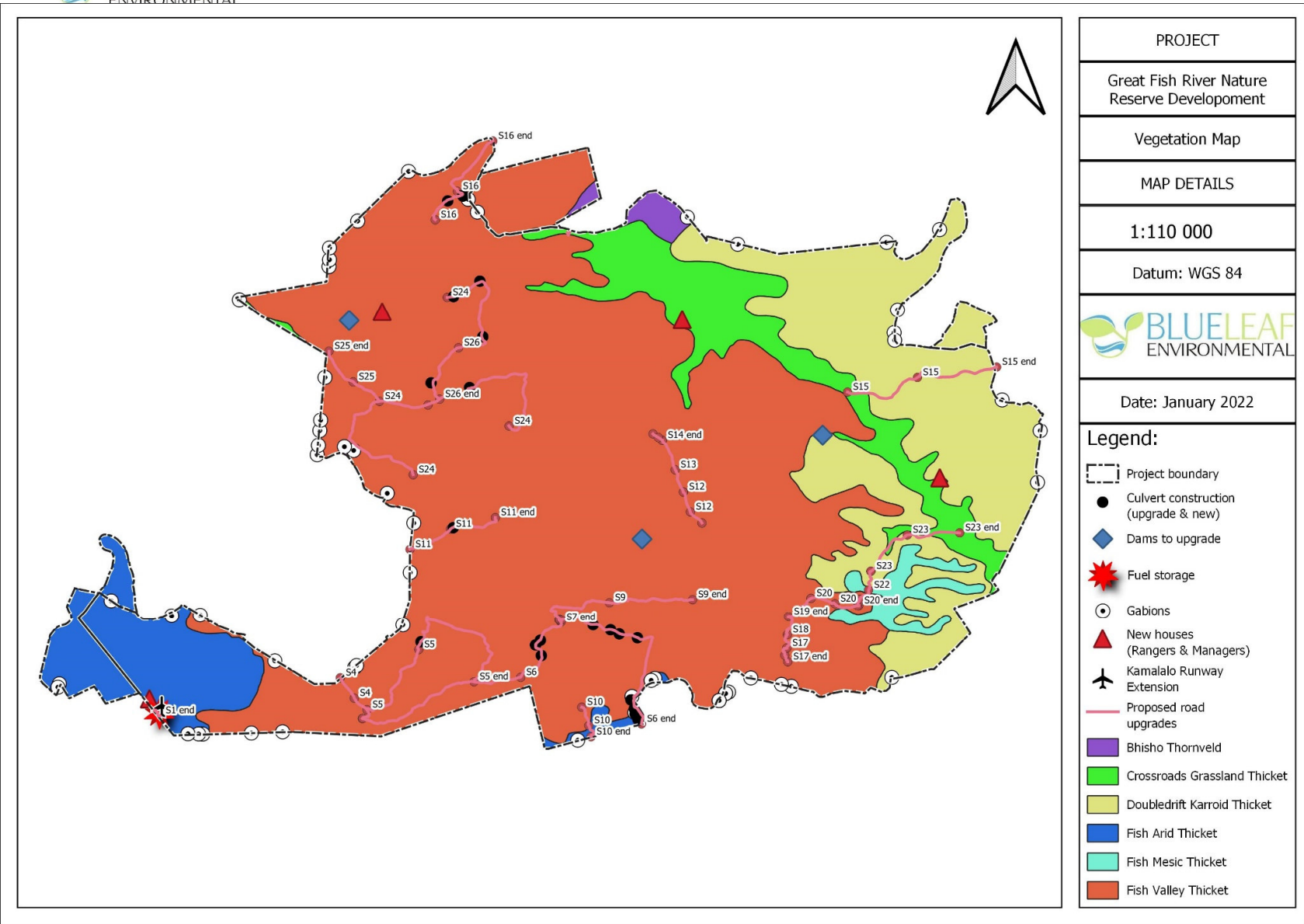


Figure 5.1: SANBI VegMap of the study site

5.2 Topography

The landscape within the GFRNR is diverse. The Park covers a total area of 45 000 ha. The Great Fish River cuts through the center of the GFRNR, geologically causing a canyon that the river has cut through the strata over millennia and where elevation suddenly drops a 100 m (Figure 5.2). This essentially divides the GFRNR into 2 sections, one on either side of the Great Fish River and where migration of terrestrial mammals is greatly hindered.

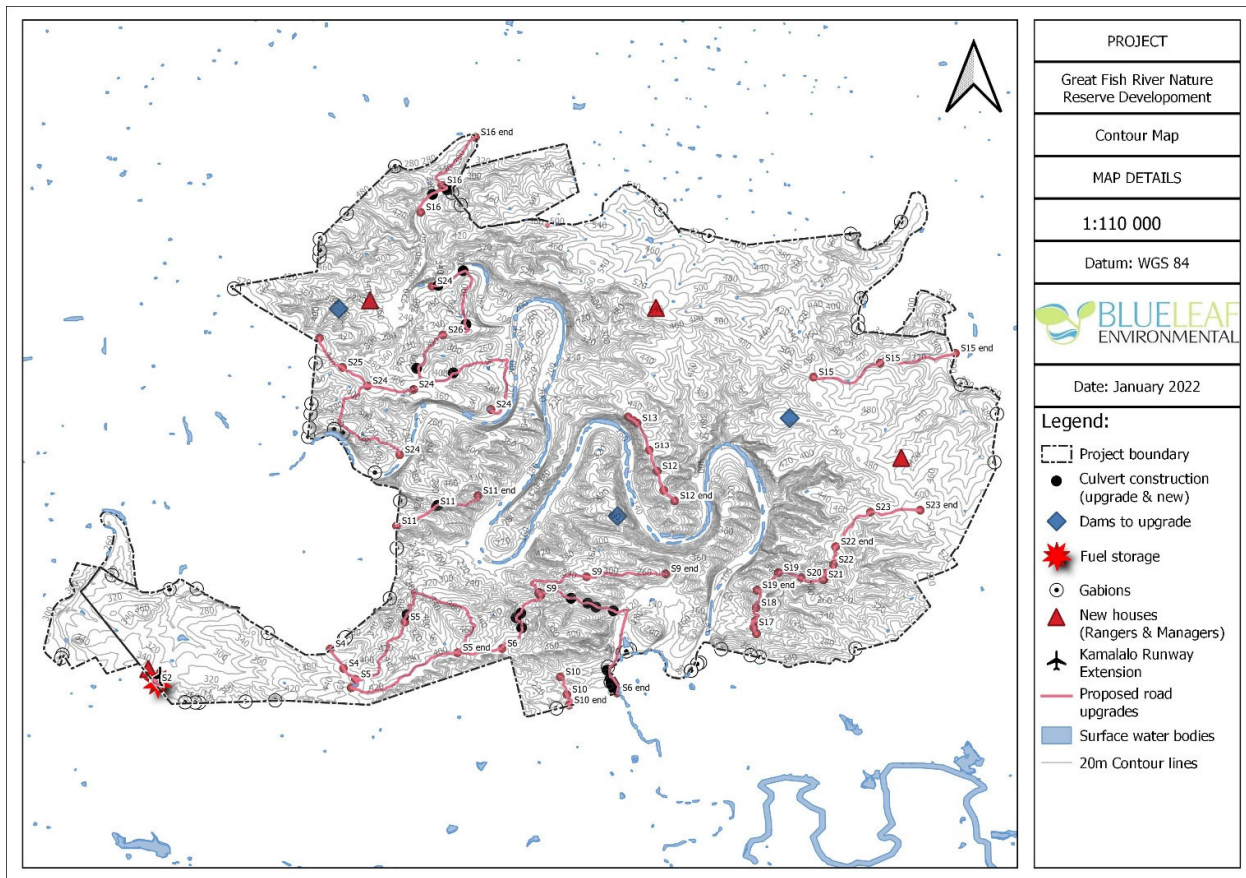


Figure 5.2: Topography of the study site and surrounding areas

Elevation ranges between 500 meters above sea level (m.a.s.l) at its highest points to 100 m.a.s.l. at the Great Fish River.

5.3 Faunal habitats

The project area is in a dynamic landscape with a diversity of habitat types and ecotones, which provide diverse opportunities for fauna.

The area itself comprises largely of a vegetated undulating landscape ranging between various thicket ecotones ranging between open patched, almost savanna type vegetation to dense valley thicket. Water is readily available as the Great Fish River transects the GFRNR. The GFRNR is a legislated Nature Reserve where no agricultural or urban development are allowed.

All these factors contribute greatly to providing a variety of faunal habitats. Various existing databases were investigated during the desktop section to determine the potential of finding specific faunal species on site. This was done in addition to the site visit so that all potential species could be

identified and not just the species observed during the site visit. As the Eastern Cape is in the middle of an ongoing drought and the site visit was conducted early summer this assessment could not only rely to what was observed on site.

Some of the faunal habitats noted on site are illustrated below:



5.4 Faunal species found on site

A total of 383 faunal species were identified to potentially occur naturally in the GFRNR. Refer to Appendix 1 for a complete list of all faunal species. Most of these species are expected to occur in the area, some only seasonally and depending on the availability of resources.

Birds

A variety of birds occur commonly in the area. Up to 70 species have been identified. A list of these species can be found in Appendix A. Only 1% (4 species) of the Faunal SCC's were identified as birds. These birds SCCs are listed in Table 5.1 below. They are classified as SCC because they were listed as sensitive by the DFFE Screening Report and therefore have a high probability of occurring on site.

Mammals

Because this is a proclaimed nature reserve and numerous habitats exist for a variety of mammals, there is a very high probability of a wide variety of mammals occurring in the site ranging from small rodents to large mammals. Up to 23% (87 species) of all the faunal species that may occur on site are mammals with 5% of those being faunal SCC (16 species). Five of the 16 SCC identified were also listed in the DFFE Screening Report. All mammal SCCs are listed in Table 5.1 below. Refer to Appendix A for a complete list of mammals potentially occurring on site. Sixteen species that are not Faunal SCC but still requires permits for relocation/removal from DEDEAT were identified. Table 5.2 provide a list of these species.

Reptiles and frogs

Most reptiles and all frogs are protected in the Eastern Cape. Only 1 reptile and 1 frog were identified as Faunal SCC (Appendix A), the rest of the frogs and most of the reptile species merely require removal permits from DEDEAT. These removal permits are not necessary required for the project and should only be applied for if any species required relocation out of the construction footprint during construction phase.

Scorpions and spiders

None of these species were identified as Faunal SCC or requiring permits. All scorpions as well as Baboon Spiders are however indicator species and must be relocated if observed or found on site.

Butterflies and moths

None of these species were identified as Faunal SCC or requiring permits.

5.5 Faunal SCC

The following table indicated faunal SCC that will require ToPS permits for relocation (Table 5.1). None of these species may be killed on site and if found, a qualified animal handler must be appointed to catch and relocate these species elsewhere within the GFRNR but outside the proposed construction footprint. The locations of highly sensitive species (*) identified in the DFFE Screening Report may not be made public.

Table 5.1: List of Faunal SCC that has a high probability of occurring on site

Family name	Scientific name	Common name	Sensitivity classification
Mammals			
Bovidae	<i>Sensitive species 5*</i>	-	Vulnerable (2016)
Bovidae	<i>Redunca fulvorufula</i>	Mountain Reedbuck	Least Concern
Elephantidae	<i>Loxodonta africana</i>	African Bush Elephant	Vulnerable A2a (2008)
Erinaceidae	<i>Atelerix frontalis</i>	Southern African Hedgehog	Near Threatened (2016)
Felidae	<i>Felis nigripes</i>	Black-footed Cat	Vulnerable (2016)
Felidae	<i>Leptailurus serval</i>	Serval	Near Threatened (2016)
Felidae	<i>Panthera pardus</i>	Leopard	Vulnerable (2016)
Hippopotamidae	<i>Hippopotamus amphibius</i>	Common Hippopotamus	Least Concern (2016)
Hyaenidae	<i>Hyaena brunnea</i>	Brown Hyena	Near Threatened (2015)
Mustelidae	<i>Aonyx capensis</i>	African Clawless Otter	Near Threatened (2016)
Mustelidae	<i>Hydrictis maculicollis</i>	Spotted-necked Otter	Vulnerable C2a(i) (2016)
Nesomyidae	<i>Mystromys albicaudatus</i>	African White-tailed Rat	Vulnerable (2016)
<i>Rhinocerotidae</i>	<i>Diceros bicornis</i>	Black Rhinoceros	Critically Endangered
Frogs			
Pyxicephalidae	<i>Pyxicephalus adspersus</i>	Giant Bull Frog	Near Threatened
Reptiles			
Lacertidae	<i>Nucras taeniolata</i>	Albany Sandveld Lizard	Near Threatened (SARCA 2014)
Birds			
<i>Otididae</i>	<i>Neotis denhami</i>	Denham Bustard	Near Threatened
<i>Oiciformes</i>	<i>Campethera notata</i>	Knysna Woodpecker	Near Threatened
<i>Accipitridae</i>	<i>Aquila verreauxi</i>	Verreaux eagle	Least concerned
<i>Accipitridae</i>	<i>Circus maurus</i>	Black harrier	Vulnerable

5.6 Provincial Ordinance Permits

The following faunal species are NOT considered as Faunal SCC but will still require permits for relocation as per Ordinance 19 of 1974. These permits must be obtained prior to commencement of any activity on site:

Table 5.2: List of Faunal species requiring permits

Family name	Scientific name	Common name
Mammals		
Bovidae	<i>Aepyceros melampus</i>	Impala
Bovidae	<i>Alcelaphus buselaphus caama</i>	Red Hartebeest
Bovidae	<i>Antidorcas marsupialis</i>	Springbok
Bovidae	<i>Damaliscus pygargus phillipsi</i>	Blesbok
Bovidae	<i>Raphicerus campestris</i>	Steenbok
Bovidae	<i>Raphicerus melanotis</i>	Cape Grysbok
Bovidae	<i>Redunca arundinum</i>	Southern Reedbuck
Bovidae	<i>Taurotragus oryx</i>	Common Eland
Bovidae	<i>Tragelaphus scriptus</i>	Bushbuck
Bovidae	<i>Tragelaphus strepsiceros</i>	Greater Kudu
Hyaenidae	<i>Proteles cristata</i>	Aardwolf

Family name	Scientific name	Common name
Rhinolophidae	<i>Rhinolophus capensis</i>	Cape Horseshoe Bat
Rhinolophidae	<i>Rhinolophus clivovus</i>	Geoffroy's Horseshoe Bat
Soricidae	<i>Crociodura cyanea</i>	Reddish-gray Musk Shrew
Soricidae	<i>Suncus infinitesimus</i>	Least Dwarf Shrew
Suidae	<i>Phacochoerus africanus</i>	Common Warthog
Reptiles		
Agamidae	<i>Agama atra</i>	Southern Rock Agama
Chamaeleonidae	<i>Bradypodion ventrale</i>	Eastern Cape Dwarf Chameleon
Cordylidae	<i>Cordylus cordylus</i>	Cape Girdled Lizard
Gekkonidae	<i>Chondrodactylus bibronii</i>	Bibron's Gecko
Gekkonidae	<i>Goggia essexi</i>	Essex's Pygmy Gecko
Gekkonidae	<i>Pachydactylus maculatus</i>	Spotted Gecko
Gekkonidae	<i>Pachydactylus mariquensis</i>	Marico Gecko
Gerrhosauridae	<i>Gerrhosaurus flavigularis</i>	Yellow-throated Plated Lizard
Gerrhosauridae	<i>Gerrhosaurus typicus</i>	Karoo Plated Lizard
Lacertidae	<i>Nucrasalandii</i>	Delalande's Sandveld Lizard
Lacertidae	<i>Pedioplanis lineoocellata pulchella</i>	Common Sand Lizard
Lacertidae	<i>Tropidosaura montana rangeri</i>	Ranger's Mountain Lizard
Lamprophiidae	<i>Boaedon capensis</i>	Brown House Snake
Lamprophiidae	<i>Duberria lutrix lutrix</i>	South African Slug-eater
Lamprophiidae	<i>Lamprophis aurora</i>	Aurora House Snake
Lamprophiidae	<i>Lamprophis guttatus</i>	Spotted House Snake
Lamprophiidae	<i>Lycodonomorphus inornatus</i>	Olive House Snake
Lamprophiidae	<i>Lycodonomorphus laevisissimus</i>	Dusky-bellied Water Snake
Lamprophiidae	<i>Lycodonomorphus rufulus</i>	Brown Water Snake
Lamprophiidae	<i>Lycophidion capense capense</i>	Cape Wolf Snake
Lamprophiidae	<i>Prosymna sundevallii</i>	Sundevall's Shovel-snout
Leptotyphlopidae	<i>Leptotyphlops nigricans</i>	Black Thread Snake
Leptotyphlopidae	<i>Leptotyphlops scutifrons conjunctus</i>	Eastern Thread Snake
Scincidae	<i>Acontias gracilicauda</i>	Thin-tailed Legless Skink
Scincidae	<i>Acontias meleagris</i>	Cape Legless Skink
Scincidae	<i>Acontias orientalis</i>	Eastern Legless Skink
Scincidae	<i>Scelotes caffer</i>	Cape Dwarf Burrowing Skink
Scincidae	<i>Trachylepis capensis</i>	Cape Skink
Scincidae	<i>Trachylepis varia sensu stricto</i>	Common Variable Skink
Scincidae	<i>Trachylepis variegata</i>	Variegated Skink
Testudinidae	<i>Chersina angulata</i>	Angulate Tortoise
Testudinidae	<i>Homopus areolatus</i>	Parrot-beaked Tortoise
Testudinidae	<i>Psammobates tentorius</i>	Tent Tortoise
Testudinidae	<i>Psammobates tentorius tentorius</i>	Karoo Tent Tortoise
Testudinidae	<i>Stigmachelys pardalis</i>	Leopard Tortoise
Varanidae	<i>Varanus albigularis albigularis</i>	Rock Monitor
Frogs		
Brevicipitidae	<i>Breviceps pantheri</i>	Eastern Cape Rain Frog
Bufoidea	<i>Sclerophrys capensis</i>	Raucous Toad
Hyperoliidae	<i>Hyperolius marmoratus</i>	Painted Reed Frog

Family name	Scientific name	Common name
Hyperoliidae	<i>Hyperolius semidiscus</i>	Yellowstriped Reed Frog
Hyperoliidae	<i>Kassina senegalensis</i>	Bubbling Kassina
Hyperoliidae	<i>Semnodactylus wealii</i>	Rattling Frog
Phrynobatrachidae	<i>Phrynobatrachus natalensis</i>	Snoring Puddle Frog
Pipidae	<i>Xenopus laevis</i>	Common Platanna
Pyxicephalidae	<i>Amietia delalandii</i>	Delalande's River Frog
Pyxicephalidae	<i>Amietia poyntoni</i>	Poynton's River Frog
Pyxicephalidae	<i>Cacosternum boettgeri</i>	Common Caco
Pyxicephalidae	<i>Cacosternum nanum</i>	Bronze Caco
Pyxicephalidae	<i>Strongylopus fasciatus</i>	Striped Stream Frog
Pyxicephalidae	<i>Tomopterna natalensis</i>	Natal Sand Frog
Pyxicephalidae	<i>Tomopterna tandyi</i>	Tandy's Sand Frog

5.7 Current threats to faunal species

While faunal habitats in the GFRNR are all intact, meaning intact faunal communities and faunal-mediated processes, the GFRNR is a closed system with various impacts being exerted from outside the Nature Reserve. This includes encroachment of alien vegetation that pose a threat to the long-term survival of the Nature Reserve, and it is imperative to control them. Other common anthropogenic threats: for example, the direct hunting of fauna for bushmeat or use in traditional medicines, and grazing effects of domestic livestock that limit foraging opportunities for large herbivores – are imperceptible in the management of the GFRNR.

Threats to faunal species also means threats to the ecological processes facilitated by fauna, (including trophic processes such as browsing, grazing, frugivory and predation), transport (pollination, seed dispersal, nutrient dispersal), habitat architecture (through the impact on plant forms), and biopedturbation (digging, hoof action) processes.

6. Site sensitivity verification

Site faunal sensitivity was determined for the entire GFRNR in the Eastern Cape Province. Because the site is a Nature Reserve with intact and mostly pristine faunal habitats occurring throughout the site, the entire GFRNR site has been classified as **Very High Sensitivity for faunal species** (Figure 6.1). It must be noted that some of the old farmlands were heavily utilized in the past, resulting in the loss of various dominant plant species (like spekboom) and restoration is currently underway (information provided by (Park officials)). This would usually mean that no development be allowed in the site but because of the nature of the proposed development within the GFRNR (upgrading internal infrastructures for the better management of the Nature Reserve, improve security and management efficiency and to provide income through tourism), the proposed development activities may be allowed provided all mitigation activities as described in this report are implemented. This will ensure a reduced risk on identified faunal sensitivities within the GFRNR.

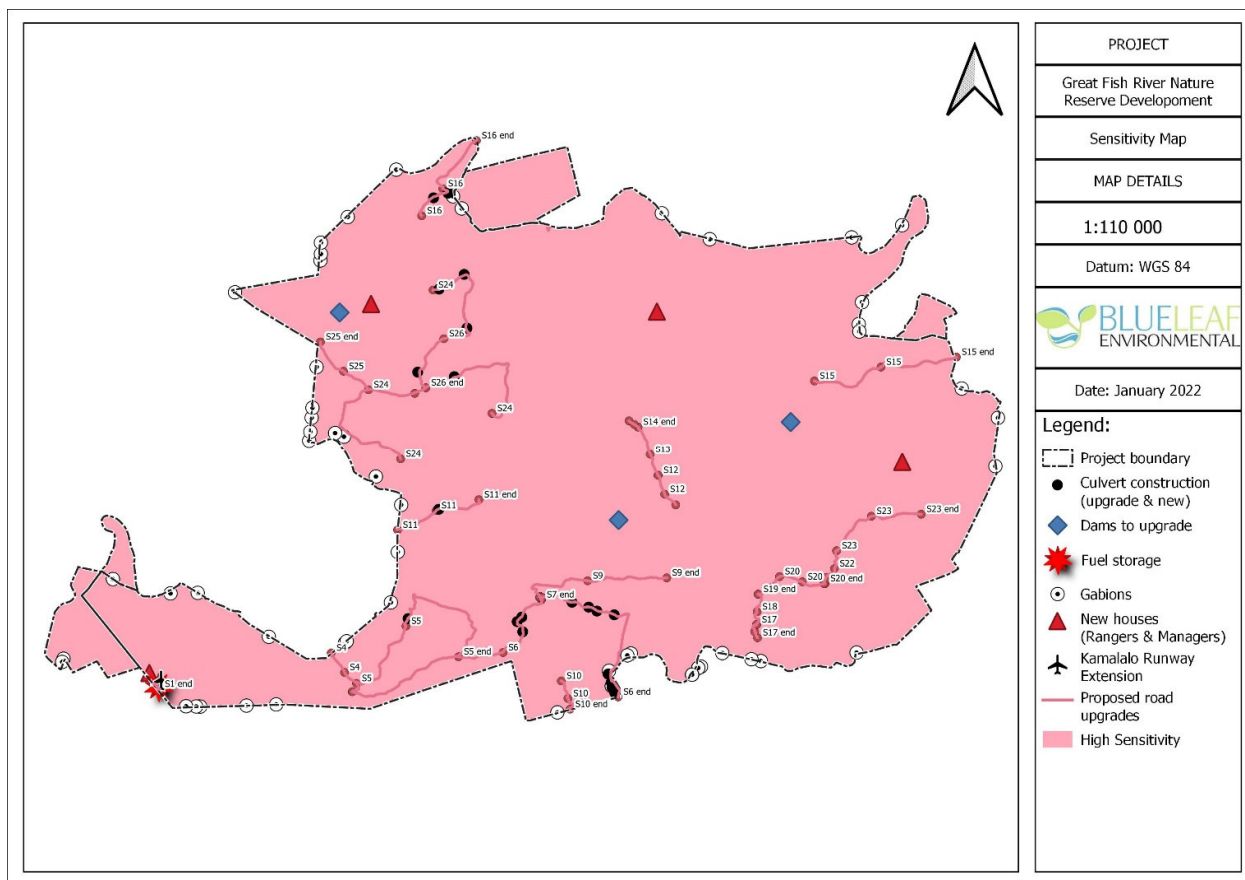


Figure 6.1: Faunal sensitivity map of the entire GFRNR

7. Impact assessment

The following issues were identified during the assessment of the GFRNR development area.

7.1 Identified impacts

The following faunal issues were identified during the assessment of the GFRNR development area:

#	Activity causing impact (Issue)	Description of impact
1	Non-compliance to existing legislation	<p>1.1. Legal compliance Non-compliance with faunal laws and policies of South Africa could lead to unnecessary delays in establishment activities, and potentially criminal cases, based on the severity of the non-compliance, being brought against the proponent and his/her contractors.</p>
2	Vegetation clearing and construction	<p>2.1. Loss of natural habitats Clearing will result in the loss of endemic thicket vegetation which acts as faunal habitat for various species.</p>
		<p>2.2. Loss of animal SCC Clearing may result in the loss of identified animal SCC.</p>
		<p>2.3. Spread of alien and invasive plant species Clearing of natural vegetation will increase the risk of alien plant species invasion.</p>
		<p>2.4. Poaching of faunal species Poaching and trapping of faunal species by contract workers.</p>

All impacts identified above were assessed as per the assessment methodology described in Chapter 4.3 of this report. Each impact was described below on how it will impact within a specific phase of the project, namely Planning and Design, Construction and Operations.

Issue 1:	Non-compliance to existing legislation
Consequence of Issue	Non-compliance with faunal laws and policies of South Africa could lead to unnecessary delays in establishment activities, and potentially criminal cases, based on the severity of the non-compliance, being brought against the proponent and his/her contractors. Permits will be required for the removal of any protected animal species.
Number of impacts identified associated with this issue	Only 1 (Impact 1.1)

Impact 1.1: Legal compliance
Phase of development: Planning and Design Phase

Nature of impact	Non-compliance with faunal laws and policies of South Africa could lead to unnecessary delays in establishment activities, and potentially criminal cases, based on the severity of the non-compliance, being brought against the proponent and his/her contractors.	
Cumulative impact	None	
Indirect impacts	None	
Residual impacts	None	
Classification of impact	Consequence of Impact	
Duration of impact	Short term	Only during construction phase.
Extent of impact	National	Provincial approval will be required.
Probability of impact occurring	Medium	Impact will occur on commencement of construction.
Intensity of impact	Very low	Legislated approval is required to impact on any protected animal species.
Degree of reversibility	High	Permits and authorizations may be required.
Irreplaceability	Low	No resource will be lost.
Mitigations	Mitigatory potential	Recommended mitigations
	High	All relevant permits must be obtained prior to commencement of any activity on site from the competent authorities to remove protected animal species.
Significance of impact	Pre-mitigation significance	Post-mitigation significance
	High negative	Low negative

Issue 2:	Vegetation clearing and construction
Consequence of issue	Clearing of natural vegetation will result in a range of issues including reducing habitats for animals, potential loss of animal species, an increasing the risk of alien vegetation spreading and poaching.
Number of impacts	4 (Impacts 2.1 to 2.4)

Impact 2.1: Loss of natural habitats	
Phase of development: Construction Phase	
Nature of impact	Clearing will result in the loss of natural thicket vegetation which acts as habitats for various faunal species.
Cumulative impact	Loss of natural habitat for various animal species.
Indirect impacts	Loss of natural vegetation.
Residual impacts	Permanent loss of natural habitats. Up to 10 ha will be permanently lost.

Classification of impact		Consequence of Impact
Duration of impact	Permanent	Clearing will result in the permanent loss of natural faunal habitats.
Extent of impact	Site specific	Only habitats within the construction footprint will be lost
Probability of impact occurring	Definite	Impact will occur on commencement of construction.
Intensity of impact	Very high negative	Ecological processes will be permanently altered.
Degree of reversibility	Moderate negative	Impact cannot be reversed but can be reduced through mitigation
Irreplaceability	High	Habitats will be permanently lost.
Mitigations	Mitigatory potential	Recommended mitigations
	Medium	<ul style="list-style-type: none"> - The construction footprint must be surveyed and demarcated prior to construction commencing. All contractors must be made aware of this demarcation. - All areas outside the demarcated footprint will be considered as No-Go areas. - No construction activities (temporary or permanent) will be allowed in these No-Go areas. - Temporary infrastructure such as the site camps, laydown areas and storage areas must be placed in areas already transformed and within the construction footprint. - No on-site fires will be permitted. This will reduce the risk of accidental veld fires and further loss of habitats. - The GFRNR rules and regulations must be always adhered to.
Significance of impact	Pre-mitigation significance	Post-mitigation significance
	High negative	Low negative

Impact 2.2: Loss of animal SCC	
Phase of development: Construction Phase	
Nature of impact	Clearing may result in the loss of identified and non-identified animal SCC.
Cumulative impact	Reduction in individual protected animal species numbers.
Indirect impacts	Loss in genetic variability within a specific protected animal species.
Residual impacts	Reduction in individual protected animal species numbers.

Classification of impact		Consequence of Impact
Duration of impact	Short term	Removal of SCC will only occur during the initial stages of clearing.
Extent of impact	Site specific	Only SCC on site will be relocated.
Probability of impact occurring	Definite	Impact will occur on commencement of construction.
Intensity of impact	Very high negative	Genetic viability will be permanently lost.
Degree of reversibility	Low negative	Impact can be reversed through mitigation.
Irreplaceability	High	Animal species will be permanently lost.
Mitigations	Mitigatory potential	Recommended mitigations
	Medium	<ul style="list-style-type: none"> - Permits must be obtained to remove any animal SCC and protected species identified prior to commencement of any activity on site. - A Faunal Search and Rescue must be conducted by a qualified Faunal specialist prior to commencement of any activity on site. - As many SCC as possible must be relocated into the surrounding areas. - No animals must be kept in cages or containers for longer than necessary during relocation. - It is recommended that only small mammals, frogs, scorpions, baboon spiders and reptiles be relocated. There is no need to relocate any big faunal species as they will naturally move away from the construction areas. - The construction site must be daily inspected (before activities for the day starts) for any trapped faunal species. These species must be relocated to nearby NoGo areas by an employee that is qualified in dangerous animal handling.
Significance of impact	Pre-mitigation significance	Post-mitigation significance
	High negative	Low negative

Impact 2.3: Spread of alien and invasive plant species	
Phase of development: Construction Phase	
Nature of impact	Clearing of natural vegetation will increase the risk of alien plant species invasion.
Cumulative impact	Increase in regional spread of alien plants.
Indirect impacts	Degradation of pristine faunal habitats by alien invasive plants.
Residual impacts	Decreased risk of loss of faunal habitats outside the construction footprint.

Classification of impact		Consequence of Impact
Duration of impact	Medium term	Clearing will mostly occur in the first few months of construction.
Extent of impact	Regional	The construction footprint as well as surrounding areas will be impacted.
Probability of impact occurring	Medium	Impact will occur throughout construction phase.
Intensity of impact	Low negative	Areas will be cleared of vegetation.
Degree of reversibility	Moderate negative	Impact can be managed throughout all phases.
Irreplaceability	Low	Partial loss of resource. Natural functions are not affected.
Mitigations	Mitigatory potential	Recommended mitigations
	Medium	<ul style="list-style-type: none"> - Develop and implement an Alien Vegetation Management Plan to mitigate the establishment and spread of undesirable alien plant species during construction. - All emergent alien plants must be removed continually. Removal must occur through appropriate methods such as hand pulling, application of chemicals, cutting, etc. as in accordance with the NEMBA: Alien Invasive Species Regulations.
Significance of impact	Pre-mitigation significance	Post-mitigation significance
	Low negative	Low negative

Impact 2.4: Poaching of faunal species	
Phase of development: Construction Phase	
Nature of impact	Poaching and trapping of faunal species by contract workers.
Cumulative impact	Increase risk in faunal species loss
Indirect impacts	Loss in animal biodiversity and animal numbers
Residual impacts	Decreased risk in loss of animal species through proposed mitigations.

Classification of impact		Consequence of Impact
Duration of impact	Medium term	Risk of poaching will occur throughout construction.
Extent of impact	Regional	The entire GFRNR area will be impacted.
Probability of impact occurring	Medium	Impact will occur throughout construction phase.
Intensity of impact	Low negative	Loss of both animal SCC and non-protected species
Degree of reversibility	Moderate negative	Impact can be managed throughout all phases.
Irreplaceability	Low	Loss of resource can be mitigated.
Mitigations	Mitigatory potential	Recommended mitigations
	Medium	<ul style="list-style-type: none"> - No poaching or trapping of any wild animal will be allowed. - All construction workers will undergo a detailed induction before working on site. GFRNR will contribute information to this induction. - The GFRNR rules and regulations must be always adhered to.
Significance of impact	Pre-mitigation significance	Post-mitigation significance
	Low negative	Low negative

8. Conclusion

The ECPTA is undertaking the upgrading of infrastructure of the GFRNR in the Eastern Cape Province. JG Africa has been appointed to undertake an Environmental Impact Assessment (EIA) on behalf of the developer. The DFFE Screening Report that JG Africa generated specified specialist studies to be conducted as part of the BAR process. The Screening Report further indicated that Animal Species Theme Sensitivity as **HIGH SENSITIVITY**. BlueLeaf Environmental (Pty) Ltd (BlueLeaf) was appointed to conduct a full Animal Species Impact Assessment as part of the EIA for the proposed development of the Great Fish River Nature Reserve Project in the Eastern Cape Province. This report addresses the Animal Species Impact Assessment theme as listed in the Screening Report.

The project area is in a dynamic landscape with a diversity of habitat types and ecotones, which provide diverse opportunities for fauna.

The area itself comprises largely of a vegetated undulating landscape ranging between various thicket ecotones ranging between open patched, almost savanna type vegetation to dense valley thicket. Water is readily available as the Great Fish River transects the GFRNR. The GFRNR is a legislated Nature Reserve where no agricultural or urban development are allowed.

All these factors contribute greatly to providing a variety of faunal habitats. Various existing databases were investigated during the desktop section to determine the potential of finding specific faunal species on site. This was done in addition to the site visit so that all potential species could be identified and not just the species observed during the site visit. As the Eastern Cape is in the middle of an ongoing drought and the site visit was conducted early summer this assessment could NOT only rely to what was observed on site.

A total of 383 faunal species were identified to potentially occur naturally in the GFRNR. Refer to Appendix 1 for a complete list of all faunal species. Most of these species are expected to occur in the area, some only seasonally and depending on the availability of resources.

A variety of birds occur commonly in the area. Up to 70 species has been identified. A list of these species can be found in Appendix A. Only 1% (4 species) of the Faunal SCC's were identified as birds. These birds SCCs are listed in Table 5.1 together with all faunal SCC's.

Because this is a proclaimed nature reserve and numerous habitats exist for a variety of mammals, there is a very high probability of a wide variety of mammals occurring in the site ranging from small rodents to large mammals. Up to 23% (87 species) of all the faunal species that may occur on site are mammals with 5% of those being faunal SCC (16 species). Five of the 16 SCC identified were also listed in the DFFE Screening Report. Sixteen species that are not Faunal SCC but still requires permits for relocation/removal from DEDEAT were identified. Refer to Table 5.3 for a complete list of non-SCC faunal species which still require permits for relocation.

Most reptiles and all frogs are protected in the Eastern Cape. Only 1 reptile and 1 frog were identified as Faunal SCC, the rest of the frogs and most of the reptile merely requires removal permits from DEDEAT. These permits must be obtained prior to commencement of any activities on site.

No scorpion species were identified as Faunal SCC or requiring permits. All scorpions as well as Baboon Spiders are however indication species and must be relocated if observed or found on site.

8.1. Site sensitivity

Site faunal sensitivity was determined for the entire GFRNR in the Eastern Cape Province. Because the site is a Nature Reserve with intact and pristine faunal habitats occurring throughout the site, the entire GFRNR site has been classified as **Very High Sensitivity for faunal species**. This would usually mean that no development be allowed in the site but because of the nature of the proposed development within the GFRNR (upgrading internal infrastructures for the better management of the Nature Reserve and to provide income through tourism), the proposed development activities may be allowed provided all mitigation activities as described in this report are implemented. This will ensure a reduced risk on identified faunal sensitivities within the GFRNR.

8.2. Alternatives

No site alternatives or layout alternatives are proposed. The proposed development is NOT considered as fatally flawed provided that all mitigation measures provided in this report are implemented.

8.3. Cumulative impacts

In terms of Environmental Impact Assessment, Cumulative Impact is defined as:

“Means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities”.

The following cumulative impacts were identified:

1. Loss of natural habitats and animal species. This will result in the loss of ecological support areas which provides habitats for a number and variety of fauna. This impact is mitigated by classifying all areas outside the construction footprint as No-Go areas. No construction, temporary or permanent, must occur in the No-Go area.
2. Increased risk of alien vegetation spreading to surrounding areas because of vegetation clearing. This impact can be easily managed through the development and implementation of an Alien and Invasive Species Management Plan. It is important to note that this plan must be implemented in both construction and operational phases of the proposed new development.

8.4. Levels of acceptable change

The proposed development is considered as an acceptable change to the environment provided all proposed mitigations are implemented.

8.5. Levels to be avoided

The proposed development may result in the negative impact on habitat and faunal species loss. Provided that all mitigation measures proposed in this report are implemented, including the classification of the No-Go area where no construction activities, vegetation clearing or poaching may occur, these risks are considered as an acceptable change to the local environment.

8.6. Current impacts

The following impacts are currently occurring on site and will be reduced/altered through the proposed development:

- Encroachment of alien vegetation that pose a threat to the long-term survival of the Nature Reserve. Left unmitigated, it is likely that alien vegetation will continue to spread and reduce the quality of local habitats.
- Hunting of fauna for bushmeat or use in traditional medicines is always an indirect threat to faunal species within the Nature Reserve. It is believed that developing the park and upgrading infrastructure will result in better management opportunities to reduce this risk.

8.7. Mitigations

The following mitigations must be included into the final EMP for the project:

Legal compliance:

- All relevant permits must be obtained from the competent authorities to remove any protected animal species.

Vegetation clearing and construction

- The construction footprint must be surveyed and demarcated prior to construction commencing. All contractors must be made aware of this demarcation.
- All areas outside the demarcated footprint will be considered as No-Go areas.
- No construction activities (temporary or permanent) will be allowed in these No-Go areas.
- Temporary infrastructure such as the site camps, laydown areas and storage areas must be placed in areas already transformed and within the construction footprint.
- No on-site fires will be permitted. This will reduce the risk of accidental veld fires and further loss of habitats.
- The GFRNR rules and regulations must be always adhered to.

Loss of animal SCC

- Permits must be obtained to remove any animal SCC and protected species identified prior to commencement of any activity on site.
- A Faunal Search and Rescue must be conducted by a qualified Faunal specialist prior to commencement of any activity on site.
- As many SCC as possible must be relocated into the surrounding areas.
- No animals must be kept in cages or containers for longer than necessary during relocation.
- It is recommended that only small mammals, frogs, scorpions, baboon spiders and reptiles be relocated. There is no need to relocate any big faunal species as they will naturally move away from the construction areas.
- The construction site must be daily inspected (before activities for the day starts) for any trapped faunal species. These species must be relocated to nearby NoGo areas by an employee that is qualified in dangerous animal handling.

Spread of alien and invasive plant species

- Develop and implement an Alien Vegetation Management Plan to mitigate the establishment and spread of undesirable alien plant species during construction.
- All emergent alien plants must be removed continually. Removal must occur through appropriate

methods such as hand pulling, application of chemicals, cutting, etc. as in accordance with the NEMBA: Alien Invasive Species Regulations.

Poaching of faunal species

- No poaching or trapping of any wild animal will be allowed.
- All construction workers will undergo a detailed induction before working on site. GFRNR will contribute information to this induction.
- The GFRNR rules and regulations must be always adhered to.

8.8. General rehabilitation measures

A Rehabilitation Plan is recommended for inclusion into the EMPr. This plan should include (at minimum) measures for control alien vegetation management. The following rehabilitation conditions must be included into the EMPr:

Alien Vegetation Management

- Institute an eradication/control programme for early intervention if invasive species are detected, so that their spread to surrounding natural ecosystems can be prevented.
- Rehabilitate disturbed areas as quickly as possible to reduce the area where invasive species would be at a strong advantage and most easily able to establish.
- Institute a monitoring programme to detect alien invasive species early, before they become established and, in the case of weeds, before the release of seeds.

8.9. Additional mitigations

Any specific faunal mitigations enforced by the GFRNR as part of their Management Plan for the Nature Reserve must be acknowledged and incorporated into the project EMPr.

8.10. Specialist opinion

The proposed development is NOT considered to be Fatally Flawed and no components of the proposed project have been identified as flawed.

No site or layout alternatives are proposed.

The faunal impacts of all aspects for the proposed GFRNR development project were assessed and considered to be acceptable, provided that all mitigation measures provided in this report are implemented.

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Appendix A: Lists of faunal species

The following lists were obtained through a mixture of field observations, interviews with Rangers and existing faunal databases. These lists therefore contain species that may potentially occur on site and were not necessarily observed on site. Faunal SCC are highlighted green while Non-SCC species requiring permits for removal/relocation are highlighted red:

Mammals:

#	Species code	Family	Scientific name	Common name	Red list category
1	151470	Bathyergidae	Cryptomys hottentotus	Southern African Mole-rat	Least Concern (2016)
2	211850	Bovidae	Aepyceros melampus	Impala	PNCO
4	211990	Bovidae	Alcelaphus buselaphus caama	Red Hartebeest	PNCO
7	212160	Bovidae	Damaliscus pygargus phillipsi	Blesbok	PNCO
9	215850	Bovidae	Hippotragus equinus	Roan Antelope	Endangered (2016)
12		Bovidae	Sensitive specie 5		Vulnerable (2016)
13	213320	Bovidae	Raphicerus campestris	Steenbok	PNCO
15	216370	Bovidae	Redunca arundinum	Southern Reedbuck	PNCO
16	216380	Bovidae	Redunca fulvorufula	Mountain Reedbuck	Least Concern
17	215700	Bovidae	Sylvicapra grimmia	Bush Duiker	Least Concern (2016)
18	213760	Bovidae	Syncerus caffer	African Buffalo	Least Concern (2008)
19	213850	Bovidae	Taurotragus oryx	Common Eland	PNCO
20	213930	Bovidae	Tragelaphus angasii	Nyala	Least Concern (2016)
21	213970	Bovidae	Tragelaphus scriptus	Bushbuck	PNCO
22	214120	Bovidae	Tragelaphus strepsiceros	Greater Kudu	PNCO
23	198600	Canidae	Canis mesomelas	Black-backed Jackal	Least Concern (2016)
24	199080	Canidae	Otocyon megalotis	Bat-eared Fox	Least Concern (2016)
25	199410	Canidae	Vulpes chama	Cape Fox	Least Concern (2016)
26	113300	Cercopithecidae	Chlorocebus pygerythrus	Vervet Monkey	Least Concern (2016)
27	114040	Cercopithecidae	Papio ursinus	Chacma Baboon	Least Concern (2016)
28	106170	Chrysochloridae	Amblysomus hottentotus	Hottentot Golden Mole	Least Concern (2016)
31	107520	Elephantidae	Loxodonta africana	African Bush Elephant	Vulnerable A2a (2008)
32	207010	Equidae	Equus quagga	Plains Zebra	Least Concern (2016)
33	159760	Erinaceidae	Atelerix frontalis	Southern African Hedgehog	Near Threatened (2016)
35	191660	Felidae	Caracal caracal	Caracal	Least Concern (2016)
37	192040	Felidae	Felis nigripes	Black-footed Cat	Vulnerable (2016)
38	192070	Felidae	Felis silvestris	Wildcat	Least Concern (2016)
39	192800	Felidae	Leptailurus serval	Serval	Near Threatened (2016)
41	193900	Felidae	Panthera pardus	Leopard	Vulnerable (2016)
44	127730	Gliridae	Graphiurus murinus	Forest African Dormouse	Least Concern
45	196100	Herpestidae	Cynictis penicillata	Yellow Mongoose	Least Concern (2016)
46	196300	Herpestidae	Herpestes pulverulentus	Cape Gray Mongoose	Least Concern (2016)
47	208440	Hippopotamidae	Hippopotamus amphibius	Common Hippopotamus	Least Concern (2016)
48	197750	Hyaenidae	Hyaena brunnea	Brown Hyena	Near Threatened (2015)
49	197770	Hyaenidae	Proteles cristata	Aardwolf	PNCO
50	151730	Hystriidae	Hystrix africaeauralis	Cape Porcupine	Least Concern
51	158240	Leporidae	Lepus saxatilis	Scrub Hare	Least Concern
52	158850	Leporidae	Pronolagus rupestris	Smith's Red Rock Hare	Least Concern (2016)
55	217970	Muridae	Aethomys namaquensis	Namaqua Rock Mouse	Least Concern
56	144330	Muridae	Desmodillus auricularis	Cape Short-tailed Gerbil	Least Concern (2016)
57	218020	Muridae	Gerbilliscus brantsii	Highveld Gerbil	Least Concern (2016)
58	146610	Muridae	Grammomys cometes	Mozambique Grammomys	Least Concern (2016)
59	147530	Muridae	Mastomys natalensis	Natal Mastomys	Least Concern (2016)
60	148270	Muridae	Mus minutoides	Southern African Pygmy Mouse	Least Concern
62	151100	Muridae	Otomys irroratus	Southern African Vlei Rat (Fynbos type)	Least Concern (2016)
63	218000	Muridae	Otomys unisulcatus	Karoo Bush Rat	Least Concern (2016)

#	Species code	Family	Scientific name	Common name	Red list category
64	150360	Muridae	<i>Rhabdomys pumilio</i>	Xeric Four-striped Grass Rat	Least Concern (2016)
65	201180	Mustelidae	<i>Aonyx capensis</i>	African Clawless Otter	Near Threatened (2016)
66	201181	Mustelidae	<i>Hydrictis maculicollis</i>	Spotted-necked Otter	Vulnerable C2a(i) (2016)
67	203170	Mustelidae	<i>Mellivora capensis</i>	Honey Badger	Least Concern (2016)
68	136790	Nesomyidae	<i>Mystromys albicaudatus</i>	African White-tailed Rat	Vulnerable (2016)
69	176970	Nycteridae	<i>Nycteris thebaica</i>	Egyptian Slit-faced Bat	Least Concern (2016)
70	106780	Orycteropodidae	<i>Orycteropus afer</i>	Aardvark	Least Concern (2016)
72	151320	Pedetidae	<i>Pedetes capensis</i>	South African Spring Hare	Least Concern (2016)
73	107300	Procaviidae	<i>Procavia capensis</i>	Cape Rock Hyrax	Least Concern (2016)
74	168290	Pteropodidae	<i>Epomophorus wahlbergi</i>	Wahlberg's Epauletted Fruit Bat	Least Concern (2016)
76	171610	Rhinolophidae	<i>Rhinolophus capensis</i>	Cape Horseshoe Bat	PNCO
77	171650	Rhinolophidae	<i>Rhinolophus clivosus</i>	Geoffroy's Horseshoe Bat	PNCO
78	-	<i>Rhinocerotidae</i>	<i>Diceros bicornis</i>	Black Rhinoceros	Critically Endangered
79	122610	Sciuridae	<i>Xerus inauris</i>	South African Ground Squirrel	Least Concern
80	160740	Soricidae	<i>Crociodura cyanea</i>	Reddish-gray Musk Shrew	PNCO
81	162890	Soricidae	<i>Suncus infinitesimus</i>	Least Dwarf Shrew	PNCO
82	207690	Suidae	<i>Phacochoerus africanus</i>	Common Warthog	PNCO
84	152080	Thryonomyidae	<i>Thryonomys swinderianus</i>	Greater Cane Rat	Least Concern (2016)
85	187040	Vespertilionidae	<i>Neoromicia capensis</i>	Cape Serotine	Least Concern (2016)
86	185360	Vespertilionidae	<i>Pipistrellus hesperidus</i>	Dusky Pipistrelle	Least Concern
87	195300	Viverridae	<i>Genetta tigrina</i>	Cape Genet (Cape Large-spotted Genet)	Least Concern (2016)

Reptiles:

#	Species list	Family	Scientific name	Common name	Red list category
1	1490	Agamidae	<i>Agama atra</i>	Southern Rock Agama	PNCO
2	1380	Chamaeleonidae	<i>Bradypodion ventrale</i>	Eastern Cape Dwarf Chameleon	PNCO
3	4560	Colubridae	<i>Crotaphopeltis hotamboeia</i>	Red-lipped Snake	Least Concern (SARCA 2014)
4	4690	Colubridae	<i>Dispholidus typus typus</i>	Boomslang	Least Concern (SARCA 2014)
5	4620	Colubridae	<i>Philothamnus occidentalis</i>	Western Natal Green Snake	PNCO
6	4640	Colubridae	<i>Philothamnus semivariegatus</i>	Spotted Bush Snake	PNCO
7	2910	Cordylidae	<i>Cordylus cordylus</i>	Cape Girdled Lizard	PNCO
8	5260	Elapidae	<i>Hemachatus haemachatus</i>	Rinkhals	Least Concern (SARCA 2014)
9	5340	Elapidae	<i>Naja nivea</i>	Cape Cobra	Least Concern (SARCA 2014)
10	480	Gekkonidae	<i>Chondrodactylus bibronii</i>	Bibron's Gecko	PNCO
11	1020	Gekkonidae	<i>Goggia essexi</i>	Essex's Pygmy Gecko	PNCO
12	600	Gekkonidae	<i>Pachydactylus maculatus</i>	Spotted Gecko	PNCO
13	610	Gekkonidae	<i>Pachydactylus mariquensis</i>	Marico Gecko	PNCO
14	3490	Gerrhosauridae	<i>Gerrhosaurus flavigularis</i>	Yellow-throated Plated Lizard	PNCO
15	3540	Gerrhosauridae	<i>Gerrhosaurus typicus</i>	Karoo Plated Lizard	PNCO
16	1750	Lacertidae	<i>Nucras lalandii</i>	Delalande's Sandveld Lizard	PNCO
17	1780	Lacertidae	<i>Nucras taeniolata</i>	Albany Sandveld Lizard	Near Threatened (SARCA 2014)
18	1890	Lacertidae	<i>Pedioplanis lineoocellata pulchella</i>	Common Sand Lizard	PNCO
19	1970	Lacertidae	<i>Tropidosaura montana rangeri</i>	Ranger's Mountain Lizard	PNCO
20	4320	Lamprophiidae	<i>Boaedon capensis</i>	Brown House Snake	PNCO
21	4510	Lamprophiidae	<i>Duberria lutrix lutrix</i>	South African Slug-eater	PNCO
22	5130	Lamprophiidae	<i>Homoroselaps lacteus</i>	Spotted Harlequin Snake	Least Concern (SARCA 2014)
23	4290	Lamprophiidae	<i>Lamprophis aurora</i>	Aurora House Snake	PNCO
24	4300	Lamprophiidae	<i>Lamprophis guttatus</i>	Spotted House Snake	PNCO
25	4340	Lamprophiidae	<i>Lycodonomorphus inornatus</i>	Olive House Snake	PNCO
26	4360	Lamprophiidae	<i>Lycodonomorphus laevisimus</i>	Dusky-bellied Water Snake	PNCO
27	4380	Lamprophiidae	<i>Lycodonomorphus rufulus</i>	Brown Water Snake	PNCO
28	4400	Lamprophiidae	<i>Lycophidion capense capense</i>	Cape Wolf Snake	PNCO

#	Species list	Family	Scientific name	Common name	Red list category
29	5050	Lamprophiidae	<i>Prosymna sundevallii</i>	Sundevall's Shovel-snout	PNCO
30	4840	Lamprophiidae	<i>Psammophis crucifer</i>	Cross-marked Grass Snake	Least Concern (SARCA 2014)
31	4890	Lamprophiidae	<i>Psammophis notostictus</i>	Karoo Sand Snake	Least Concern (SARCA 2014)
32	4960	Lamprophiidae	<i>Psammophylax rhombeatus</i>	Spotted Grass Snake	Least Concern (SARCA 2014)
33	3990	Leptotyphlopidae	<i>Leptotyphlops nigricans</i>	Black Thread Snake	PNCO
34	4021	Leptotyphlopidae	<i>Leptotyphlops scutifrons conjunctus</i>	Eastern Thread Snake	PNCO
35	5781	Pelomedusidae	<i>Pelomedusa galeata</i>	South African Marsh Terrapin	Not evaluated
36	4070	Pythonidae	<i>Python natalensis</i>	Southern African Python	Least Concern (SARCA 2014)
37	2000	Scincidae	<i>Acontias gracilicauda</i>	Thin-tailed Legless Skink	PNCO
38	2060	Scincidae	<i>Acontias meleagris</i>	Cape Legless Skink	PNCO
39	2070	Scincidae	<i>Acontias orientalis</i>	Eastern Legless Skink	PNCO
40	2600	Scincidae	<i>Scelotes caffer</i>	Cape Dwarf Burrowing Skink	PNCO
41	2310	Scincidae	<i>Trachylepis capensis</i>	Cape Skink	PNCO
42	8710	Scincidae	<i>Trachylepis varia sensu stricto</i>	Common Variable Skink	PNCO
43	2490	Scincidae	<i>Trachylepis variegata</i>	Variiegated Skink	PNCO
44	5530	Testudinidae	<i>Chersina angulata</i>	Angulate Tortoise	PNCO
45	5550	Testudinidae	<i>Homopus areolatus</i>	Parrot-beaked Tortoise	PNCO
46	5691	Testudinidae	<i>Psammobates tentorius</i>	Tent Tortoise (subsp. ?)	PNCO
47	5670	Testudinidae	<i>Psammobates tentorius tentorius</i>	Karoo Tent Tortoise	PNCO
48	5540	Testudinidae	<i>Stigmochelys pardalis</i>	Leopard Tortoise	PNCO
49	3850	Typhlopidae	<i>Rhinotyphlops lalandei</i>	Delalande's Beaked Blind Snake	Least Concern (SARCA 2014)
50	1220	Varanidae	<i>Varanus albigularis albigularis</i>	Rock Monitor	PNCO
51	5410	Viperidae	<i>Bitis arietans arietans</i>	Puff Adder	Least Concern (SARCA 2014)
52	5390	Viperidae	<i>Causus rhombeatus</i>	Rhombic Night Adder	Least Concern (SARCA 2014)

Frogs:

#	Species code	Family	Scientific name	Common name	Red list category
1	4700	Brevicipitidae	<i>Breviceps pentheri</i>	Eastern Cape Rain Frog	PNCO
2	370	Bufoiidae	<i>Sclerophrys capensis</i>	Raucous Toad	PNCO
4	590	Hyperoliidae	<i>Hyperolius marmoratus</i>	Painted Reed Frog	PNCO
5	630	Hyperoliidae	<i>Hyperolius semidiscus</i>	Yellowstriped Reed Frog	PNCO
6	660	Hyperoliidae	<i>Kassina senegalensis</i>	Bubbling Kassina	PNCO
7	920	Hyperoliidae	<i>Semnodactylus wealii</i>	Rattling Frog	PNCO
8	740	Phrynobatrachidae	<i>Phrynobatrachus natalensis</i>	Snoring Puddle Frog	PNCO
9	1050	Pipidae	<i>Xenopus laevis</i>	Common Platanna	PNCO
10	880	Pyxicephalidae	<i>Amietia delalandii</i>	Delalande's River Frog	PNCO
11	882	Pyxicephalidae	<i>Amietia poyntoni</i>	Poynton's River Frog	PNCO
12	400	Pyxicephalidae	<i>Cacosternum boettgeri</i>	Common Caco	PNCO
13	430	Pyxicephalidae	<i>Cacosternum nanum</i>	Bronze Caco	PNCO
14	850	Pyxicephalidae	<i>Pyxicephalus adspersus</i>	Giant Bull Frog	Near Threatened
15	940	Pyxicephalidae	<i>Strongylopus fasciatus</i>	Striped Stream Frog	PNCO
16	1030	Pyxicephalidae	<i>Tomopterna natalensis</i>	Natal Sand Frog	PNCO
17	1025	Pyxicephalidae	<i>Tomopterna tandyi</i>	Tandy's Sand Frog	PNCO

Butterflies and moths:

#	Species code	Family	Scientific name	Common name	Red list category
1	620400	CRAMBIDAE	<i>Loxostege frustalis</i>		
2	519830	EREBIDAE	<i>Achaea lienardi</i>		
3	514020	EREBIDAE	<i>Amerila bauri</i>		
4	501160	EREBIDAE	<i>Chrysozonata sp.</i>		
5	522580	EREBIDAE	<i>Cuneisigna obstans</i>		
6	514730	EREBIDAE	<i>Cyana rhodostriata</i>		
7	523070	EREBIDAE	<i>Dysgonia properans</i>		
8	524520	EREBIDAE	<i>Grammodes stolidia</i>		
9	590150	EREBIDAE	<i>Laelia punctulata</i>		
10	590890	EREBIDAE	<i>Palasea albimacula</i>		
12	516480	EREBIDAE	<i>Paralacydes vocula</i>		
13	528270	EREBIDAE	<i>Plecopterodes moderata</i>		
14	591070	EREBIDAE	<i>Polymona rufifemur</i>		
15	517150	EREBIDAE	<i>Siccia caffra</i>		
16	529270	EREBIDAE	<i>Sphingomorpha chlorea</i>		
17	637940	EREBIDAE	<i>Thyretes caffra</i>		
18	566490	GEOMETRIDAE	<i>Allochlorodes elpis</i>		Not Threatened (NT) [not an IUCN category]
19	656940	GEOMETRIDAE	<i>Aphilopota patulata</i>		
20	544880	GEOMETRIDAE	<i>Chiasmia subcurvaria</i>		
21	633790	GEOMETRIDAE	<i>Chlorerythra rubriplaga</i>		Not Threatened (NT) [not an IUCN category]
23	545900	GEOMETRIDAE	<i>Drepanogynis bifasciata</i>		Not Threatened (NT) [not an IUCN category]
24	545980	GEOMETRIDAE	<i>Drepanogynis cambogiaria</i>		Not Threatened (NT) [not an IUCN category]
26	548190	GEOMETRIDAE	<i>Eulycia accentuata</i>		Not Threatened (NT) [not an IUCN category]
27	549910	GEOMETRIDAE	<i>Ligdia pectinicornis</i>		Not Threatened (NT) [not an IUCN category]
29	551160	GEOMETRIDAE	<i>Omphalucha indeflexa</i>		Not Threatened (NT) [not an IUCN category]
30	634640	GEOMETRIDAE	<i>Palaeaspilates inoffensa</i>		Not Threatened (NT) [not an IUCN category]
32	636410	GEOMETRIDAE	<i>Scopula sanguinsecta</i>		Not Threatened (NT) [not an IUCN category]
33	636730	GEOMETRIDAE	<i>Scopula trisinuata</i>		Not Threatened (NT) [not an IUCN category]
34	636780	GEOMETRIDAE	<i>Scopula vestalis</i>		Not Threatened (NT) [not an IUCN category]
35	553260	GEOMETRIDAE	<i>Xenimpia erosa</i>		Not Threatened (NT) [not an IUCN category]
36	553440	GEOMETRIDAE	<i>Xylopteryx prasinaria</i>		Not Threatened (NT) [not an IUCN category]
37	553910	GEOMETRIDAE	<i>Zamarada metallicata</i>		Not Threatened (NT) [not an IUCN category]
38	472101	HESPERIIDAE	<i>Afrogegenes sp.</i>		
39	468310	HESPERIIDAE	<i>Coeliades keithloa</i>	Red-tab policeman	Least Concern (SABCA 2013)
40	470370	HESPERIIDAE	<i>Eretis djaelaelae</i>	Marbled elf	Least Concern (SABCA 2013)
41	470470	HESPERIIDAE	<i>Eretis umbra umbra</i>	Small-marbled elf	Least Concern (SABCA 2013)
42	470950	HESPERIIDAE	<i>Gomalia elma elma</i>	Green-marbled skipper	Least Concern (SABCA 2013)
43	473000	HESPERIIDAE	<i>Kedestes lepenula</i>	Chequered ranger	Least Concern (SABCA 2013)
44	473010	HESPERIIDAE	<i>Kedestes macomo</i>	Macomo ranger	Least Concern (SABCA 2013)
45	471590	HESPERIIDAE	<i>Metisella malgacha malgacha</i>	Grassveld sylph	Least Concern (SABCA 2013)
46	471670	HESPERIIDAE	<i>Metisella metis paris</i>	Gold-spotted sylph	Least Concern (SABCA 2013)
47	472520	HESPERIIDAE	<i>Pelopidas mathias</i>	Black-branded swift	Least Concern (SABCA 2013)
48	472530	HESPERIIDAE	<i>Pelopidas thrax</i>	White-branded swift	Least Concern (SABCA 2013)
49	470760	HESPERIIDAE	<i>Sarangesa phidyle</i>	Small elfin	Least Concern (SABCA 2013)
51	471010	HESPERIIDAE	<i>Spialia agylla agylla</i>	Grassveld sandman	Least Concern (SABCA 2013)
52	471030	HESPERIIDAE	<i>Spialia asterodia</i>	Star sandman	Least Concern (SABCA 2013)
53	471170	HESPERIIDAE	<i>Spialia ferax</i>	Striped sandman	Least Concern (SABCA 2013)
54	471270	HESPERIIDAE	<i>Spialia nanus</i>	Dwarf sandman	Least Concern (SABCA 2013)
55	471320	HESPERIIDAE	<i>Spialia sataspes</i>	Boland sandman	Least Concern (SABCA 2013)
56	471340	HESPERIIDAE	<i>Spialia spio</i>	Mountain sandman	Least Concern (SABCA 2013)
57	582800	LASIOCAMPIDAE	<i>Odontocheilopteryx myxa</i>		
58	585640	LIMACODIDAE	<i>Chrysopoloma rudis</i>		
59	464690	LYCAENIDAE	<i>Actizera lucida</i>	Rayed blue	Least Concern (SABCA 2013)
60	458870	LYCAENIDAE	<i>Aloeides aranda</i>	Yellow russet	Least Concern (SABCA 2013)

#	Species code	Family	Scientific name	Common name	Red list category
61	459400	LYCAENIDAE	<i>Aloeides pallida pallida</i>	Giant russet	Least Concern (SABCA 2013)
62	459470	LYCAENIDAE	<i>Aloeides pierus</i>	Veined russet	Least Concern (SABCA 2013)
63	459640	LYCAENIDAE	<i>Aloeides trimeni trimeni</i>	Brown russet	Least Concern (SABCA 2013)
64	460430	LYCAENIDAE	<i>Anthene amarah amarah</i>	Black-striped ciliate blue	Least Concern (SABCA 2013)
65	460620	LYCAENIDAE	<i>Anthene definita definita</i>	Steel-blue-ciliate blue	Least Concern (SABCA 2013)
66	461050	LYCAENIDAE	<i>Anthene livida livida</i>	Pale ciliate blue	Least Concern (SABCA 2013)
67	461140	LYCAENIDAE	<i>Anthene millari</i>	Estcourt ciliate blue	Least Concern (SABCA 2013)
68	461500	LYCAENIDAE	<i>Anthene talboti</i>	Savanna ciliate blue	Least Concern (SABCA 2013)
70	458620	LYCAENIDAE	<i>Axiocerses croesus</i>	Dark-banded scarlet	Least Concern (SABCA 2013)
71	464800	LYCAENIDAE	<i>Azonus jesous</i>	Topaz babul blue	Least Concern (SABCA 2013)
72	463670	LYCAENIDAE	<i>Cacyreus lingeus</i>	Bush bronze	Least Concern (SABCA 2013)
73	463680	LYCAENIDAE	<i>Cacyreus marshalli</i>	Common geranium bronze	Least Concern (SABCA 2013)
74	457090	LYCAENIDAE	<i>Chrysoritis chrysaor</i>	Burnished opal	Least Concern (SABCA 2013)
75	457390	LYCAENIDAE	<i>Chrysoritis phosphor phosphor</i>	Golden flash	Least Concern (SABCA 2013)
76	456860	LYCAENIDAE	<i>Crudaria capensis</i>	Cape grey	Least Concern (SABCA 2013)
77	463090	LYCAENIDAE	<i>Cupidopsis cissus cissus</i>	Meadow blue	Least Concern (SABCA 2013)
78	454470	LYCAENIDAE	<i>Deudorix antalus</i>	Brown playboy	Least Concern (SABCA 2013)
79	443750	LYCAENIDAE	<i>Durbania amakosa amakosa</i>	Amakoza rocksitter	Least Concern (SABCA 2013)
80	443800	LYCAENIDAE	<i>Durbania amakosa penningtoni</i>	Amakoza rocksitter	Least Concern (SABCA 2013)
81	465000	LYCAENIDAE	<i>Eicochrysops messapus messapus</i>	Cupreous ash blue	Least Concern (SABCA 2013)
82	452170	LYCAENIDAE	<i>Iolais mimosae mimosae</i>	Mimosa sapphire	Least Concern (SABCA 2013)
83	453350	LYCAENIDAE	<i>Iolais silas</i>	Southern sapphire	Least Concern (SABCA 2013)
84	440210	LYCAENIDAE	<i>Lachnocnema bibulus</i>	Common woolly legs	Least Concern (SABCA 2013)
85	463230	LYCAENIDAE	<i>Lampides boeticus</i>	Pea blue	Least Concern (SABCA 2013)
86	466180	LYCAENIDAE	<i>Lepidochrysops asteris</i>	Brilliant giant cupid	Least Concern (SABCA 2013)
87	466550	LYCAENIDAE	<i>Lepidochrysops grahami</i>	East cape giant cupid	Least Concern (SABCA 2013)
88	466780	LYCAENIDAE	<i>Lepidochrysops ketsi ketsi</i>	Ketsi giant cupid	Least Concern (SABCA 2013)
89	467230	LYCAENIDAE	<i>Lepidochrysops patricia</i>	Patrician giant cupid	Least Concern (SABCA 2013)
90	467330	LYCAENIDAE	<i>Lepidochrysops plebeia plebeia</i>	Twin-spot giant cupid	Least Concern (SABCA 2013)
91	467630	LYCAENIDAE	<i>Lepidochrysops tantalus</i>	King giant cupid	Least Concern (SABCA 2013)
93	454400	LYCAENIDAE	<i>Leptomyrina hirundo</i>	Tailed black-eye	Least Concern (SABCA 2013)
94	454410	LYCAENIDAE	<i>Leptomyrina lara</i>	Cape black-eye	Least Concern (SABCA 2013)
95	464050	LYCAENIDAE	<i>Leptotes pirthous pirthous</i>	Common zebra blue	Least Concern (SABCA 2013)
96	460220	LYCAENIDAE	<i>Lycaena clarki</i>	Eastern sorrel copper	Least Concern (SABCA 2013)
97	451070	LYCAENIDAE	<i>Myrina silenus ficedula</i>	Common fig tree blue	Least Concern (SABCA 2013)
98	465560	LYCAENIDAE	<i>Orachrysops subravus</i>	Grizzled cupid	Least Concern (SABCA 2013)
99	464770	LYCAENIDAE	<i>Oraidium barberae</i>	Dwarf blue	Least Concern (SABCA 2013)
100	453500	LYCAENIDAE	<i>Stugeta bowkeri bowkeri</i>	Bowker's marbled sapphire	Least Concern (SABCA 2013)
101	464490	LYCAENIDAE	<i>Tarucus sybaris sybaris</i>	Dotted pierrot	Least Concern (SABCA 2013)
102	464520	LYCAENIDAE	<i>Tarucus thespis</i>	Vivid pierrot	Least Concern (SABCA 2013)
103	440600	LYCAENIDAE	<i>Thestor basutus basutus</i>	Basuto skolly	Least Concern (SABCA 2013)
104	457770	LYCAENIDAE	<i>Trimenia argyroplaga argyroplaga</i>	Large silver-spotted copper	Least Concern (SABCA 2013)
105	457800	LYCAENIDAE	<i>Trimenia macmasteri macmasteri</i>	Karoo silver-spotted copper	Least Concern (SABCA 2013)
106	464330	LYCAENIDAE	<i>Tuxentius melaena melaena</i>	Black pie	Least Concern (SABCA 2013)
107	464605	LYCAENIDAE	<i>Zizeeria knysna knysna</i>	African grass blue	Least Concern (SABCA 2013)
108	464650	LYCAENIDAE	<i>Zizina otis antanossa</i>	African clover blue	Least Concern (SABCA 2013)
109	464720	LYCAENIDAE	<i>Zizula hylax</i>	Tiny grass blue	Least Concern (SABCA 2013)
111	500230	NOCTUIDAE	<i>Acontia discoidea</i>		
112	574400	NOCTUIDAE	<i>Adisura aerugo</i>		
113	506560	NOCTUIDAE	<i>Agoma trimenii</i>		
114	540010	NOCTUIDAE	<i>Cucullia hutchinsoni</i>		
115	511480	NOCTUIDAE	<i>Leucotrachea melanodonta</i>		
116	574040	NOCTUIDAE	<i>Omphalestra sp.</i>		
117	507230	NOCTUIDAE	<i>Ovios capensis</i>		
118	601180	NOTODONTIDAE	<i>Cerurella natalensis</i>		
119	603190	NOTODONTIDAE	<i>Pseudorethona albicans</i>		
120	439440	NYMPHALIDAE	<i>Catacroptera cloanthe cloanthe</i>	Pirate	Least Concern (SABCA 2013)
121	433560	NYMPHALIDAE	<i>Charaxes jahluca jahluca</i>	Pearl-spotted charaxes	Least Concern (SABCA 2013)
122	433650	NYMPHALIDAE	<i>Charaxes karkloof karkloof</i>	Karkloof charaxes	Least Concern (SABCA 2013)
123	437080	NYMPHALIDAE	<i>Charaxes varanes varanes</i>	Pearl charaxes	Least Concern (SABCA 2013)
124	409280	NYMPHALIDAE	<i>Danaus chrysipus orientis</i>	African plain tiger	Least Concern (SABCA 2013)
125	415450	NYMPHALIDAE	<i>Dira clytus eurina</i>	Cape autumn widow	Least Concern (SABCA 2013)
126	438280	NYMPHALIDAE	<i>Junonia hierta cebrene</i>	Yellow pansy	Least Concern (SABCA 2013)
127	438380	NYMPHALIDAE	<i>Junonia orithya madagascariensis</i>	African blue pansy	Least Concern (SABCA 2013)
128	419610	NYMPHALIDAE	<i>Neita durhani</i>	Plain large ringlet	Least Concern (SABCA 2013)
129	438810	NYMPHALIDAE	<i>Precis archesia archesia</i>	Garden inspector	Least Concern (SABCA 2013)
130	438980	NYMPHALIDAE	<i>Precis octavia sesamus</i>	Southern gaudy commodore	Least Concern (SABCA 2013)
131	438050	NYMPHALIDAE	<i>Vanessa cardui</i>	Painted lady	Least Concern (SABCA 2013)
132	400530	PAPILIONIDAE	<i>Papilio demodocus demodocus</i>	Citrus swallowtail	Least Concern (SABCA 2013)

#	Species code	Family	Scientific name	Common name	Red list category
133	401360	PAPILIONIDAE	<i>Papilio nireus lyaeus</i>	Narrow green-banded swallowtail	Least Concern (SABCA 2013)
134	407450	PIERIDAE	<i>Belenois aurota</i>	Pioneer caper white	Least Concern (SABCA 2013)
135	407590	PIERIDAE	<i>Belenois creona severina</i>	African caper white	Least Concern (SABCA 2013)
136	407630	PIERIDAE	<i>Belenois gidica abyssinica</i>	African veined white	Least Concern (SABCA 2013)
137	403120	PIERIDAE	<i>Catopsilia florella</i>	African migrant	Least Concern (SABCA 2013)
138	403160	PIERIDAE	<i>Colias electo electo</i>	African clouded yellow	Least Concern (SABCA 2013)
139	403740	PIERIDAE	<i>Colotis annae annae</i>	Scarlet tip	Least Concern (SABCA 2013)
140	403830	PIERIDAE	<i>Colotis auxo auxo</i>	Sulphur orange tip	Least Concern (SABCA 2013)
141	404180	PIERIDAE	<i>Colotis euipe omphale</i>	Southern round-winged orange tip	Least Concern (LC)
142	404240	PIERIDAE	<i>Colotis evagore antigone</i>	Small orange tip	Least Concern (SABCA 2013)
143	407190	PIERIDAE	<i>Dixeia charina charina</i>	African ant-heap white	Least Concern (SABCA 2013)
144	405670	PIERIDAE	<i>Mylothris agathina agathina</i>	Eastern dotted border	Least Concern (SABCA 2013)
145	403400	PIERIDAE	<i>Nepheronia buquetii buquetii</i>	Buquet's vagrant	Least Concern (SABCA 2013)
146	403570	PIERIDAE	<i>Pinacopteryx eriphia eriphia</i>	Zebra white	Least Concern (SABCA 2013)
147	405610	PIERIDAE	<i>Pontia helice helice</i>	Southern meadow white	Least Concern (SABCA 2013)
148	403690	PIERIDAE	<i>Teracolus eris eris</i>	Banded gold tip	Least Concern (SABCA 2013)
149	622080	SATURNIIDAE	<i>Heniocha apollonia</i>		
150	622760	SATURNIIDAE	<i>Ludia delagorguei</i>		
151	554820	URANIIDAE	<i>Epilema reducta</i>		

Scorpions:

#	Species code	Family	Scientific name	Common name	Red list category
1	302750	BUTHIDAE	<i>Parabuthus planicauda</i>		
2	303460	BUTHIDAE	<i>Uroplectes triangulifer</i>		
3	303840	HORMURIDAE	<i>Hadogenes trichiurus</i>		
4	304720	SCORPIONIDAE	<i>Opisththalmus nitidiceps</i>		

Spiders:

#	Species code	Family	Scientific name	Common name	Red list category
1	700160	Theraphosidae	<i>Brachionopus sp.</i>		
2	700480	Theraphosidae	<i>Harpactira tigrina</i>		

Birds:

#	Common species	Genus	Species
1	Bokmakierie	<i>Telophorus</i>	<i>zeylonus</i>
2	Hamerkop	<i>Scopus</i>	<i>umbretta</i>
3	Neddicky	<i>Cisticola</i>	<i>fulvicapilla</i>
4	Bar-throated Apalis	<i>Apalis</i>	<i>thoracica</i>
5	Yellow-breasted Apalis	<i>Apalis</i>	<i>flavida</i>
6	Black-collared Barbet	<i>Lybius</i>	<i>torquatus</i>
7	Cape Barbet	<i>Batis</i>	<i>capensis</i>
8	Chinspot Batis	<i>Batis</i>	<i>molitor</i>
9	Southern Boubou	<i>Laniarius</i>	<i>ferrugineus</i>
10	Dark-capped Bulbul	<i>Pycnonotus</i>	<i>tricolor</i>
11	Olive Bushsrike	<i>Chlorophoneus</i>	<i>olivaceus</i>
12	Common Buzzard	<i>Buteo</i>	<i>buteo</i>
13	Green-backed Camaroptera	<i>Camaroptera</i>	<i>brachyura</i>
14	Familiar Chat	<i>Oenanthe</i>	<i>familiaris</i>
15	Lazy Cisticola	<i>Cisticola</i>	<i>aberrans</i>
16	Cape Crow	<i>Corvus</i>	<i>capensis</i>
17	Black Cuckoo	<i>Cuculus</i>	<i>clamosus</i>
18	Cape Turtle Dove	<i>Streptopelia</i>	<i>capicola</i>
19	Emerald-spotted Wood Dove	<i>Turtur</i>	<i>chalcospilos</i>
20	Fork-tailed Drongo	<i>Dicrurus</i>	<i>adsimilis</i>
21	African Black Duck	<i>Anas</i>	<i>sparsa</i>
22	Yellow-billed Duck	<i>Anas</i>	<i>undulata</i>

#	Common species	Genus	Species
23	African Firefinch	<i>Lagonosticta</i>	<i>rubricata</i>
24	Southern Fiscal	<i>Lanius</i>	<i>collaris</i>
25	Fiscal Flycatcher	<i>Melaenornis</i>	<i>silens</i>
26	Spotted Flycatcher	<i>Muscicapa</i>	<i>striata</i>
27	Egyptian Goose	<i>Alopochen</i>	<i>aegyptiaca</i>
28	Sombre Greenbul	<i>Andropadus</i>	<i>importunus</i>
29	Greater Honeyguide	<i>Indicator</i>	<i>indicator</i>
30	African Hoopoe	<i>Upupa</i>	<i>africana</i>
31	Dusky Indigobird	<i>Vidua</i>	<i>funerea</i>
32	Rock Kestrel	<i>Falco</i>	<i>rupicolus</i>
33	Brown-hooded Kingfisher	<i>Halcyon</i>	<i>albiventris</i>
34	Eastern Clapper Lark	<i>Mirafra</i>	<i>fasciolata</i>
35	Rufous-naped Lark	<i>Mirafra</i>	<i>africana</i>
36	Rock Martin	<i>Ptyonoprogne</i>	<i>fuligula</i>
37	Red-faced Mousebird	<i>Urocolius</i>	<i>indicus</i>
38	Black-headed Oriole	<i>Oriolus</i>	<i>larvatus</i>
39	Common Ostrich	<i>Struthio</i>	<i>camelus</i>
40	African Pipit	<i>Anthus</i>	<i>cinnamomeus</i>
41	Three-banded Plover	<i>Charadrius</i>	<i>tricoloris</i>
42	Karoo Prinia	<i>Prinia</i>	<i>maculosa</i>
43	Black-backed Puffback	<i>Dryoscopus</i>	<i>cubla</i>
44	Karoo Scrub Robin	<i>Cercotrichas</i>	<i>coryphoeus</i>
45	White-browed Scrub Robin	<i>Cercotrichas</i>	<i>leucophrys</i>
46	Southern Grey-headed Sparrow	<i>Passer</i>	<i>diffusus</i>
47	Cape Starling	<i>Lamprotornis</i>	<i>nitens</i>
48	Red-winged Starling	<i>Onychognathus</i>	<i>morio</i>
49	Wattled Starling	<i>Creatophora</i>	<i>cinerea</i>
50	Black Stork	<i>Ciconia</i>	<i>nigra</i>
51	Barn Swallow	<i>Hirundo</i>	<i>rustica</i>
52	Greater Striped Swallow	<i>Cecropis</i>	<i>cucullata</i>
53	Lesser Striped Swallow	<i>Cecropis</i>	<i>abyssinica</i>
54	Southern Tchagra	<i>Tchagra</i>	<i>tchagra</i>
55	Red-billed Teal	<i>Anas</i>	<i>erythrorhyncha</i>
56	Spotted Thick-knee	<i>Burhinus</i>	<i>capensis</i>
57	Cape Rock Thrush	<i>Monticola</i>	<i>rupestris</i>
58	Southern Black Tit	<i>Melaniparus</i>	<i>niger</i>
59	Common Waxbill	<i>Estrilda</i>	<i>astrild</i>
60	Dark-backed Weaver	<i>Ploceus</i>	<i>bicolor</i>
61	Spectacled Weaver	<i>Ploceus</i>	<i>ocularis</i>
62	Yellow Weaver	<i>Ploceus</i>	<i>subaureus</i>
63	Cape White-eye	<i>Zosterops</i>	<i>virens</i>
64	Green Wood Hoopoe	<i>Phoeniculus</i>	<i>purpureus</i>
65	Cardinal Woodpecker	<i>Dendropicos</i>	<i>fuscescens</i>
66	Olive Woodpecker	<i>Dendropicos</i>	<i>griseocephalus</i>
67	Denham Bustard	<i>Neotis</i>	<i>denhami</i>
68	Knysna Woodpecker	<i>Campethera</i>	<i>notata</i>
69	Verreaux eagle	<i>Aquila</i>	<i>verreauxii</i>
70	Black harrier	<i>Circus</i>	<i>maurus</i>



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

File Reference Number:	(For official use only)
NEAS Reference Number:	DEA/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

PROJECT TITLE

TERRESTRIAL ANIMAL SPECIES ASSESSMENT FOR THE PROPOSED INFRASTRUCTURE DEVELOPMENT AND UPGRADES IN THE GREAT FISH RIVER NATURE RESERVE, WITHIN THE MAKANA LOCAL MUNICIPALITY, RAYMOND MAHLABA LOCAL MUNICIPALITY AND NGQUSHWA LOCAL MUNICIPALITY, EASTERN CAPE PROVINCE

Kindly note the following:

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.environment.gov.za/documents/forms>.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
5. All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

Departmental Details

Postal address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Private Bag X447
Pretoria
0001

Physical address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Environment House
473 Steve Biko Road
Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:
Email: EIAAdmin@environment.gov.za

1. SPECIALIST INFORMATION

Specialist Company Name:	BlueLeaf Environmental (Pty) Ltd		
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	4	Percentage Procurement recognition
			0
Specialist name:	Mr Roy de Kock		
Specialist Qualifications:	BSC (Hons) Geology 2008; MSc (Botany) - 2010.		
Professional affiliation/registration:	SACNASP (400216/16) SAAB IAIAsa		
Physical address:	38 Tulip Avenue, Sunridge Park, Port Elizabeth		
Postal address:	38 Tulip Avenue, Sunridge Park, Port Elizabeth		
Postal code:	6045	Cell:	076 281 9660
Telephone:	-	Fax:	-
E-mail:	roy@blueleafenviro.co.za		

2. DECLARATION BY THE SPECIALIST

I, Roy de Kock, declare that –

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the Specialist

BlueLeaf Environmental (Pty) Ltd

Name of Company:

28 June 2023

Date

Details of Specialist, Declaration and Undertaking Under Oath

3. UNDERTAKING UNDER OATH/ AFFIRMATION

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



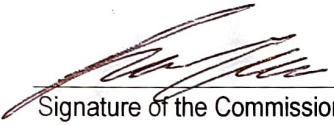
Signature of the Specialist

BlueLeaf Environmental (Pty) Ltd

Name of Company

28 June 2023

Date



Signature of the Commissioner of Oaths

28 June 2023

Date

COMMISSIONER OF OATHS
CHARL MEISTRE
Ex Officio - Professional Accountant (SA)
23 Bernard Road, Charlo, Port Elizabeth, 6070
082 737 1406

Curriculum Vitae

I worked as an environmental consultant for the past 14 years and since December 2019 have been self-employed as a botanical, agricultural and soil specialist. I have a BSc Hons in Geology, an MSc in Botany and is currently completing a PhD in Botany/Soil science. I have experience in project management and have led numerous EIAs in the Eastern Cape, Northern Cape, Gauteng, Mpumalanga, and North West Provinces. My projects include SANRAL road projects, renewable energy developments, mining applications (quarries and BPs), mixed-use developments and numerous smaller infrastructure EIAs. My largest project was a multi-million Rand Special Economic Zone (SEZ) development in Upington, Northern Cape. Before studying I worked as a financial advisor for ABSA Bank for 9 years and have 3 years high school mathematics and science teaching experience.

Personal Details

Name	Roy de Kock
Identification number	7606 2205 3202 082
Current address	31 Aster Avenue, Sunridge Park, Port Elizabeth, Eastern Cape, South Africa
Email	roy@blueleafenviro.co.za
Contact number	+27 76 281 9660
Driver's license	Code 08 (EB)
Language competencies	English (excellent verbal and writing) Afrikaans (excellent verbal and writing)

Education

Qualification	Institution	Year
PhD Botany and Soil Science	Nelson Mandela University	Current
MSc Botany	Nelson Mandela University	2010
BSc (Hons.) Geology	Nelson Mandela University	2008
BSc Botany & Geology	Nelson Mandela University	2007
Diploma in Marketing	University of Witwatersrand	2003

Skill Highlights

Project Management and Environmental Consulting	<ul style="list-style-type: none">– Extensive experience in project management and have led numerous projects of various scales throughout South Africa.– Managed over 200 projects over an 11-year period.– Managed up to 15 projects at a single time.
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	<ul style="list-style-type: none"> – My projects included SANRAL road projects, renewable energy developments, mining applications (quarries and BPs), mixed-use developments and numerous smaller infrastructure EIAs. – My largest project was a multi-million Rand Special Economic Zone development in Upington, Northern Cape. – Experience in conservation management and have developed various management plans for protected areas within the Eastern Cape and Gauteng.
Environmental Legislation	<p>I have extensive experience in interpreting and applying the following International, National, Provincial legislation:</p> <p><u>International:</u></p> <ul style="list-style-type: none"> – IFC Performance Standards – Equator Principles <p><u>National:</u></p> <ul style="list-style-type: none"> – National Environmental Management Act – National Environmental Management Act (EIA Regulations) – National Environmental Management Waste Act – National Environmental Management Air Quality Act – National Environmental Management Biodiversity Act – National Environmental Management Protected Areas Act – National Water Act – National Forestry Act – Conservation of Agricultural Resources Act <p><u>Provincial</u></p> <p>I am well versed in provincial environmental legislation and regulations in the following provinces:</p> <ul style="list-style-type: none"> – Gauteng – Western Cape – Eastern Cape – Northern Cape – North West – Mpumalanga
Specialist consulting	<ul style="list-style-type: none"> – Worked as a specialist for the last 11 years while managing projects. – Self-employed as a botanical and soil specialist since January 2020. – SACNASP registered as a Professional Natural Scientist. – Written over 50 botanical, ecological and biodiversity assessments.

	<ul style="list-style-type: none"> – Done over 25 agricultural and soil assessments for numerous mining (and other) EIAs throughout SA and Mozambique and even have experience drafting rehabilitation and closure plans for large mines (graphite, REEs, Iron). – In the last 2-3 years I have started drafting wetland and river assessments – Drafted a few visual assessments throughout the years. – Done numerous Water Use Licences for a variety of clients including farmers, contractors and developers
Finance	<ul style="list-style-type: none"> – 9 years working experience as a financial advisor for ABSA Bank. – Consulted commercial clients to assist in cash flow issues – Done retail consulting for small businesses and private individuals
Teaching	<ul style="list-style-type: none"> – 3 years' experience in teaching Mathematics, Science, Biology and Geography to High School grades. – 1-year experience in teaching advance mathematics as an online course to Secondary School grades.
Environmental Auditing	<ul style="list-style-type: none"> – Drafted over 100 environmental and safety protocols for various developers throughout South Africa – Implemented and audited numerous environmental and safety protocols during all phases of development (Planning, construction, operations, decommissioning and closure) – Drafted numerous Environmental and Social Management Systems (ESMS) for international clients – Audited various ESMS's throughout South Africa

Work Experience

Environmental and Soil Consultant

BlueLeaf Environmental (Pty) Ltd – 12/2019 to current

- Conducting specialist studies for various projects in South Africa including:
 - Ecological assessments
 - Biodiversity studies
 - Agricultural and Soil assessments
 - Aquatic assessments
 - Visual assessments
- Water Use Licensing (abstraction, borehole, bridges & culverts)

- Plant and animal relocation permits (National and Provincial)
- Plant and animal Search and Rescue.
- Environmental Risk Assessments
- Mine Rehabilitation and Closure Plans

Principal Environmental Consultant

Employer: CES Environmental and Social Advisory Services, East London, Eastern Cape - 04/2010 to 12/2019

- Managed numerous projects of various sizes including budget management, client liaison, timeframe targets, managing junior consultants and sub-consultants.
- Prepared environmental impact assessment (EIA) reports in terms of relevant EIA legislation and regulations for development proposals including: Infrastructure projects: bulk water and waste water, roads, electrical, mining, ports, aquaculture, renewable energy (solar and wind), industrial processes, housing developments, golf estates and resorts, etc.
- Projects have also included preparation of applications in terms of other statutory requirements, such as water-use and mining license /permit applications.

Feasibility assessments

- Managed projects to develop pre-feasibility and feasibility assessments for various projects, including various tourism developments, infrastructure projects, etc.

Specialist studies

- Conducting specialist studies for various projects in both South Africa and the rest of Africa (Mozambique, Madagascar, Zambia, Malawi) including:
 - Ecological assessments
 - Agricultural and Soil assessments
 - Aquatic assessments
 - Water Use Licensing (abstraction, borehole, bridges & culverts)
 - Plant and animal relocation permits (National and Provincial), and
 - Plant and animal Search and Rescue.

Laboratory technician

Nelson Mandela University (Faculties of Botany, Zoology and Biochemistry, Port Elizabeth, Eastern Cape – 02/2009 to 03/2010

Assisting students and postgraduates in receiving, labeling, and analyzing samples, design, set-up and conducting of experiments. Designing and executing laboratory testing according standard procedures. General laboratory maintenance of equipment including calibrations, glassware, and chemicals.

School Teacher

Hananja Private School, Jeffreys Bay, Eastern Cape – 01/2007 to 12/2009
Private online tutor East London, Eastern Cape – 01/2020 to current

Teaching Grades 8 to 12 Mathematics, Geography, Biology and Science.
Online teaching Advanced Mathematics and Science Grades 4-7 (2019-current)

Financial Advisor

ABSA Bank Florida, Gauteng – 02/1995 to 12/2003

Assisting clients to determine their expenses, income, insurance coverage, financial objectives, tax status, risk tolerance, or other information needed to develop a financial plan. Answering client questions about financial plans and strategies and giving financial advice. Also worked as:

- Bankteller
- Enquiries clerk
- Administrative assistant
- Treasurer
- Retail sales consultant

Professional Registrations

- SACNASP – Registered as a professional natural scientist (Ref 400216/16)
- IAIASa – Registered as an environmental practitioner
- SAAB – South African Association of Botanists
- LaRSSA – Land Rehabilitation Society of South Africa



herewith certifies that

Roy de Kock

Registration Number: 400216/16

is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following field(s) of practice (Schedule 1 of the Act)

Environmental Science (Professional Natural Scientist)

Effective **21 September 2016**

Expires **31 March 2024**



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

Chairperson

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

Chief Executive Officer

