

ANIMAL SPECIES ASSESSMENT FOR THE PROPOSED BLIKANA DAM BULK WATER SUPPLY SCHEME, WITHIN THE SENQU LOCAL MUNICIPALITY, EASTERN CAPE

Prepared for:

ABANTU ENVIRONMENTAL SERVICES



Prepared by:

EARTHGUARD CONSULTING



APRIL 2026

Earthguard Consulting (Pty) Ltd

Tel: 043 735 2626

Website: www.earthguard.co.za

Email: info@earthguard.co.za

East London:

10 Liddiard Street, Saxilby

East London

5247

Johannesburg:

13 Sundowner Lakes, Taurus Road

Sundowner

2188

Executive Summary

The Joe Gqabi District Municipality proposes the Blikana Water Supply Scheme (BWSS) in Blikana, Senqu Local Municipality, Eastern Cape. The scheme includes construction of a dam, abstraction works, a 7.5 ML/day water treatment works (WTW), Command Reservoirs (CR1–CR3), and an extensive network of rising and gravity mains supplying potable water to Wards 2–6. The National Web-Based Environmental Screening Tool identified elevated Animal Species Theme sensitivity, prompting a specialist animal species assessment.

A desktop review of biodiversity context and screening outputs was undertaken, followed by a field verification survey on 31 January 2026 (summer) with approximately ~9 hours of field effort across representative nodes and accessible sections of the corridor. No Species of Conservation Concern (SCC) were observed during the survey; however, suitable habitat receptors occur within the footprint/PAOI, particularly rocky escarpments/cliffs (including locations where infrastructure is proposed on or immediately adjacent to cliff faces/edges) and rivers/streams with riparian corridors. Screening-triggered SCC considered include Cape Vulture (*Gyps coprotheres*), Verreaux's Eagle (*Aquila verreauxii*), Southern Bald Ibis (*Geronticus calvus*), Spotted-necked Otter (*Hydrictis maculicollis*), and a withheld sensitive species ("Sensitive species 29"). Site Ecological Importance (SEI) was applied to receptor units within the PAOI, confirming highest sensitivity at cliff-face/cliff-edge receptors and elevated sensitivity along riparian corridors.

With respect to alternatives, the preferred WTW site is supported over Alternative 1 from an animal species perspective. Although both sites are of relatively low fauna sensitivity compared to the more important cliff and riparian receptors elsewhere in the BWSS project area, the preferred site is located within a previously disturbed grazing/cultivation area, whereas Alternative 1 is associated with dongas and drainage line features that increase local habitat complexity and indirect disturbance pathways. The preferred WTW site is therefore considered the lower-risk option from an animal species perspective.

The report provides species-specific impact pathways, mitigation measures, monitoring requirements, and alternative footprint/micro-siting principles to reduce sensitivity where feasible in a mountainous terrain context.

Table of Contents

Executive Summary.....	ii
Disclaimer.....	iv
DEFINITION OF TERMS.....	v
1. Introduction.....	1
1.1. Project Background and Description.....	1
1.2. Alternatives.....	1
1.3. Ecological relevance of the project components.....	2
2. Site Location and Description.....	2
2.1. Terms of Reference.....	2
3. Legal Framework.....	4
3.1. Relevant legislation.....	4
4. Methodology.....	5
4.1. Sources of Information (Desktop Inputs).....	5
4.2. Site Visit.....	6
4.3. Identified Animal Species Theme Sensitivity- Screening Report Review.....	9
4.4. Site Ecological Importance.....	10
4.5. Assumptions, Limitations and Gaps in Knowledge.....	18
5. Description of the Receiving Environment.....	20
5.1. Land Use.....	20
5.2. Climate.....	22
5.3. Topography and landscape features.....	22
5.4. Geology and soils.....	22
5.5. Vegetation.....	23
5.6. Biodiversity.....	25
6. Description of the Animal (Fauna) Species.....	27
6.1. Identify the SCC Which Were Found, Observed or Are Likely to Occur Within the Study Area 27	
6.2. Provide Evidence (Photographs or Sound Recordings) Of Each SCC Found or Observed Within the Study Area.....	29
6.3. the online database name, hyperlink and record accession numbers for disseminated evidence of SCC found within the study area.....	30
6.4. Identify the Distribution, Location, Viability and Provide a Detailed Description of Population Size of the SCC.....	31
6.5. Identify the Nature and the Extent of the Potential Impact of the Proposed Development on the Population of the SCC.....	31
6.6. Determine the Importance of the Conservation of the Population of the SCC Identified Within the Study Area.....	33
6.7. List of Species, and/or other relevant databases.....	33

6.8. Determine the Potential Impact of the Proposed Development on the Habitat of the SCC Located Within the Study Area.....	33
6.9. Include A Review of Relevant Literature on the Population Size of the SCC, the Conservation Interventions as well As Any National or Provincial Species Management Plans for the SCC	34
6.10. Identify Any Dynamic Ecological Processes Occurring Within the Broader Landscape that Might Be Disrupted by the Development and Result in Negative Impact on the Identified SCC	35
6.11. Identify Any Potential Impact of Ecological Connectivity In Relation to the Broader Landscape	36
6.12. Determine buffer distances as per the Species Environmental Assessment Guidelines used for the population of each SCC	36
6.13. Discuss the Presence or Likelihood of Additional SCC Including Threatened Species Not Identified by the Screening Too.....	36
7. Impact Assessment	39
7.1. Impact Identification and Description	41
7.2. No-Go Alternative	45
7.3. Operational Phase Impacts	45
8. Conclusion	49
8.1. Specialist Opinion.....	49
9. References	51

List of Tables

Table 3-1: Environmental legislation, protocols and guidelines considered in the preparation of this study	4
Table 4-1: Conservation Importance (CI) criteria (summary)	12
Table 4-2: Functional Integrity (FI) criteria (summary).....	13
Table 4-3: BI matrix (CI + FI)	14
Table 4-4: Receptor Resilience (RR) criteria (summary).....	14
Table 4-5: SEI matrix (BI + RR)	15
Table 4-6: SEI evaluation for animal receptors in the BWSS PAOI.....	16
Table 4-7: Interpreting SEI for BWSS activities (what each SEI means for design/mitigation)	17
Table 5-1: Management objectives for ECBCP ESAs	25
Table 7-1: Criteria used in determining significance ratings to potential impacts.....	39
Table 7-2: Definition of significance ratings (positive and negative).....	41

List of Figures

Figure 2-1: Locality map of proposed Blikana Dam Buk Water Supply Scheme.....	2
Figure 4-1: PAOI	8
Figure 4-2: PAIO map relevant to animal species as per the environmental screen tool report.	10

Table 4-7: Interpreting SEI for BWSS activities (what each SEI means for design/mitigation)..... 17

Figure 4-2: WTW site alternatives..... 18

Figure 5-1: Land Cover Map of the proposed Blikana Dam BWSS..... 21

Figure 5-2: Geology Map of Study Area 23

Figure 5-3: Vegetation of the study site and surrounding areas 24

Figure 5-4: Blikana Dam BWSS ECBCP 2019 CBA Map (ESA1)..... 26

Figure 6-1: Rocky escarpment/cliff habitat – suitable potential roosting/nesting habitat for cliff-associated avifauna (e.g., Cape Vulture and Verreaux’s Eagle)..... 30

Figure 6-2: River/stream within study area – riparian/aquatic habitat relevant to riparian-associated fauna pathways (e.g., Spotted-necked Otter) and sensitive to sedimentation/pollution. 30

Disclaimer

This report is based on survey and assessment techniques which are limited by time and budgetary constraints relevant to the type and level of investigation undertaken. The findings, results, observations, conclusions and recommendations given in this report are based on the author's best scientific and professional knowledge as well as information available at the time of study. Opinions presented in this report apply to the site conditions and features as they existed at the time of investigations, and those reasonably foreseeable. These opinions do not necessarily apply to conditions and features that may arise after the date of this Report, about which Earthguard Consulting had no prior knowledge nor had the opportunity to evaluate. Therefore, the author reserves the right to modify aspects of the report, including the recommendations, if and when new information may become available from ongoing research or further work in this field, or pertaining to this investigation.

Although the authors exercised due care and diligence in rendering services and preparing documents, they accept no liability, and the client, by receiving this document, indemnifies the author against all actions, claims, demands, losses, liabilities, costs, damages and expenses arising from or in connection with services rendered, directly or indirectly by the author and by the use of this document.

DEFINITION OF TERMS

Alien species: The alien species are species which originated from a foreign country.

Assessment Criteria: The environmental impacts are assessed with mitigation measures (MM) and without mitigation measures (WMM).

Biodiversity: Biodiversity is the variety of plant and animal life in the world or in a habitat.

Biome: A major biotic unit consisting of plant and animal communities having similarities in form and environmental conditions, but not including the abiotic portion of the environment.

Catchment: A catchment is an area where water is collected by the natural landscape. In a catchment, all rain and run-off water eventually flow to a river, wetland, lake or ocean, or into the groundwater system.

Confidence: The confidence level can be classified as medium during the construction phase. However, the confidence level becomes low during the operational phase.

Conservation: Conservation is the management of the biosphere so that it may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations.

Corridors: Have important functions as strips of a particular type of landscape differing from adjacent land on both sides. Habitat, ecosystems or undeveloped areas that physically connect habitat patches. Smaller, intervening patches of surviving habitat can also serve as "steppingstones" that link fragmented ecosystems by ensuring that certain ecological processes are maintained within and between groups of habitat fragments.

Degraded habitat/land: Land that has been impacted upon by human activities (including introduction of invasive alien plants, light to moderate overgrazing, accelerated soil erosion, dumping of waste), but still retains a degree of its original structure and species composition (although some species loss would have occurred) and where ecological processes still occur (albeit in an altered way). Degraded land is capable of being restored to a near-natural state with appropriate ecological management.

Duration: The period of time during which something continues.

Ecological Processes: Ecological processes typically only function well where natural vegetation remains, and in particular where the remaining vegetation is well-connected with other nearby patches of natural vegetation. Loss and fragmentation of natural habitat severely threatens the integrity of ecological processes. Where basic processes are intact, ecosystems are likely to recover more easily from disturbances or inappropriate actions if the actions themselves are not permanent. Conversely, the more interference there has been with basic processes, the greater the severity (and longevity) of effects. Natural processes are complex and interdependent, and it is not possible to predict all the consequences of loss of biodiversity or ecosystem integrity. When a region's natural or historic level of diversity and integrity is maintained, higher levels of system productivity are supported in the long run and the overall effects of disturbances may be dampened.

Ecosystem: Organisms together with their biotic environment, forming an interacting system, inhabiting an identifiable space.

Ecosystem services: Activities that help to maintain an ecosystem but are not directly part of energy flows and nutrient cycles. Examples include pollination, dispersal, population regulation, and provision of clean water and the maintenance of liveable climates (carbon sequestration).

Ecosystem status: Ecosystem status of terrestrial ecosystems is based on the degree of habitat loss that has occurred in each ecosystem, relative to two thresholds: one for maintaining healthy ecosystem functioning, and one for conserving the majority of species associated with the ecosystem. As natural

habitat is lost in an ecosystem, its functioning is increasingly compromised, leading eventually to the collapse of the ecosystem and to loss of species associated with that ecosystem.

Endangered: A taxon is endangered when it is not Critically Endangered but is facing a very high risk of extinction in the wild in the near future.

Endemic: An 'Endemic Species' is one that is only found in that region and nowhere else in the world. As such they are of conservation concern because they are not widespread and may be confined to only one or two protected areas.

Environment: The external circumstances, conditions and objects that affect the existence and development of an individual, organism or group. These circumstances include biophysical, social, economic, historical and cultural aspects.

Exotic: a species introduced either accidentally or deliberately by human actions into places beyond its natural geographical range.

Forb: A plant without secondary thickening (i.e. non-woody), usually living for only one or two seasons.

Forest: A plant community having a continuous tree layer, with or without a shrub/herbaceous layer (Geldenhuys et al. 1988). In his structural classification of vegetation types Edwards (1983) defined forests as a 'vegetation type possessing canopy cover $\geq 75\%$ of trees taller than two meters.

Fragmentation (habitat): Causes land transformation, an important current process in landscapes as more and more development occurs.

Habitat: The home of a plant or animal species. Generally, those features of an area inhabited by animal or plant which are essential to its survival.

Indigenous: Native; occurring naturally in a defined area.

Intensity: The intensity of the development can be categorized as medium since the impacts of the activity will alter the environment due to increased disturbance of the site by heavy machinery

Invasive Plant: A kind of plant which has under section 2 (3) of CARA been declared an invader plant, and includes the seed of such plant and any vegetative part of such plant which reproduces itself asexually.

Intact: Used here to describe a natural environment that is not badly damaged, and is still operating healthily.

IUCN: International Union for Conservation of Nature.

Mitigate/Mitigation: Mitigating impacts refers to reactive practical actions that minimize or reduce in situ impacts. Examples of mitigation include "changes to the scale, design, location, siting, process, sequencing, phasing, and management and/or monitoring of the proposed activity, as well as restoration or rehabilitation of sites". Mitigation actions can take place anywhere, as long as their effect is to reduce the effect on the site where a change in ecological character is likely, or the values of the site are affected by those changes (Ramsar Convention, 2012).

Probability: Is a way of expressing knowledge or belief that an event will occur or has occurred.

Red Data: A list of fauna and flora species that require environmental protection.

Revegetation: The process of establishing a vegetative cover on exposed soils, regardless of species composition or structure, as long as the species are non-invasive and their presence will not impede the gradual process of ecological rehabilitation or –restoration.

Riparian: Pertaining to, situated on or associated with a riverbank.

River corridors: River corridors perform several ecological functions such as modulating stream flow, storing water, removing harmful materials from water, and providing habitat for aquatic and terrestrial plants and animals. These corridors also have vegetation and soil characteristics distinctly different from

surrounding uplands and support higher levels of species diversity, species densities, and rates of biological productivity than most other landscape elements. Rivers provide for migration and exchange between inland and coastal biotas.

Significance with and without mitigation: The significance without mitigation is medium; meaning that the impact of the development is of moderate importance and is considered to have a medium negative impact. The significance with mitigation is low, meaning that the negative impact of the operation is of importance but is reduced by the mitigation measures.

Species diversity: A measure of the number and relative abundance of species (see biodiversity).

Species richness: The number of species in an area or habitat.

Transformed Habitat/Land: Land that has been significantly impacted upon as a result of human interferences/disturbances (such as cultivation, urban development, mining, landscaping, severe overgrazing), and where the original structure, species composition and functioning of ecological processes have been irreversibly altered. Transformed habitats are not capable of being restored to their original states.

Untransformed habitat/land: Land that has not been significantly impacted upon by man's activities. These are ecosystems that are in a near-pristine condition in terms of structure, species composition and functioning of ecological processes.

Vulnerable: Vulnerable terrestrial ecosystems have lost some (more than 60% remains) of their original natural habitat and their functioning will be compromised if they continue to lose natural habitat.

Weed: An indigenous or non-indigenous plant that grows and reproduces aggressively, usually a ruderal pioneer of disturbed areas. Weeds may be unwanted because they are unsightly, or they limit the growth of other plants by blocking light or using up nutrients from the soil. They can also harbour and spread plant pathogens.

Wetlands: A collective term used to describe lands that are sometimes or always covered by shallow water or have saturated soils, and where plants adapted for life in wet conditions usually grow.

List of Abbreviations

Abbreviation Meaning

BA	Basic Assessment
BWSS	Bulk Water Supply Scheme
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CR	Component/Reservoir site reference (project-specific site code)
DFFE	Department of Forestry, Fisheries and the Environment
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
ECBCP	Eastern Cape Biodiversity Conservation Plan
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
GN	Government Notice
GPS	Global Positioning System
IUCN	International Union for Conservation of Nature
NEM:AQA	National Environmental Management: Air Quality Act
NEM:PAA	National Environmental Management: Protected Areas Act
NEMBA	National Environmental Management: Biodiversity Act
NEMA	National Environmental Management Act
PAOI	Project Area of Influence
SCC	Species of Conservation Concern
SSV	Site Sensitivity Verification
TOPS	Threatened or Protected Species
VEGMAP	National Vegetation Map of South Africa
WTW	Water Treatment Works

Declaration of Independence

I, **Zona Quvile**, in my capacity as a specialist consultant, hereby declare that I -

- Act as an independent consultant;
- Do not have any financial interest in the undertaking of the activity, other than remuneration for the work performed in terms of the National Environmental Management Act, 1998 (Act 107 of 1998);
- Undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the National Environmental Management Act, 1998 (Act 107 of 1998);
- Work performed for this study was done in an objective manner. Even if this study results in views and findings that are not favourable to the client/applicant, I will not be affected in any manner by the outcome of any environmental process of which this report may form a part, other than being a member of the general public;
- This document and all information contained herein is and will remain the intellectual property of Earthguard Consulting and the specialist investigator responsible for conducting the study. This document, in its entirety or any portion thereof, may not be altered in any manner or form, for any purpose without the specific and written consent of the specialist investigator;
- As a registered member of the South African Council for Natural Scientific Professions, will undertake my profession in accordance with the Code of Conduct of the Council, as well as any other societies to which I am a member;
- As a registered member of the Environmental Assessment Practitioners Association of South Africa, will undertake my profession in accordance with the Code of Conduct of the Council, as well as any other societies to which I am a member; and
- Based on information provided to me by the project proponent, and in addition to information obtained during the course of this study, have presented the results and conclusion within the associated document to the best of my professional judgement.



2026.04.07

Disclosure:

Earthguard Consulting (Pty) Ltd undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) and will provide the competent authority with access to all information at its disposal regarding the application, whether such information is favourable to the applicant or not.

Based on information provided to Earthguard Consulting (Pty) Ltd by the client and in addition to information obtained during the course of this study, Earthguard Consulting (Pty) Ltd present the results and conclusion within the associated document to the best of the author's professional judgement and in accordance with best practise.

Specialist Details

This Blikana Water Supply Scheme Animal Species Specialist Report has been prepared in accordance with the requirements of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and aligned with the Terrestrial Animal Species Protocol published under Government Notice No. 1150 (Government Gazette 43855, 30 October 2020).

The details of Specialist are as follows –

Mrs Zona Dotwana-Quvile

PhD Candidate (Environmental Science) at Rhodes University (Makhanda) and has 10 years of professional experience in biodiversity and ecological assessments, including animal species sensitivity verification, SCC screening responses, impact assessment and mitigation planning, and conservation management planning across regions of South Africa. Her work integrates ecological principles and biodiversity management with environmental compliance requirements under NEMA and associated specialist protocols.

Main areas of specialisation

- Terrestrial and faunal ecology, including habitat assessment and faunal–habitat relationships
- Field identification and habitat evaluation for amphibians, reptiles, avifauna, and small to medium mammals
- Ecological sensitivity verification and species screening in line with the Terrestrial Animal Species Protocol (GN 1150 of 2020)
- Environmental impact identification, mitigation, and rehabilitation planning (construction and operational phases)
- Application of national biodiversity and planning frameworks (e.g., SANBI VegMap, ECBCP 2019, NFEPA, relevant provincial biodiversity plans and SCC screening tools)
- Experience with linear infrastructure and water-supply projects, including assessing cliff-associated and riparian-associated fauna pathways and developing EMPr-aligned mitigation measures

Summary of expertise

Qualifications: Med (Environmental Education), Rhodes University
Biodiversity and Conservation Honours, Rhodes University
Environmental Studies, Walter Sisulu University
Tools for Wetland Assessment Course, Rhodes University
Hydropedology and Wetland Course (WETREST; DSA)
The mini stream assessment scoring system (miniSASS), GroundTruth

Professional Affiliation: SACNASP: 115598
EAPASA: 2019/1039

Experience with fauna and flora assessments: 10 years

Professional Natural Scientist, South African Council for Natural Scientific Professions.

Member, Land Rehabilitation Society of Southern Africa

Member, South African Wetland Society

Employment

1. Introduction

Earthguard Consulting has been appointed by Abantu Environmental Services (Pty) Ltd to conduct a terrestrial fauna assessment for the proposed Blikana Dam Bulk Water Supply Scheme in Blikana, near Sterkspruit, as part of an environmental authorisation application.

1.1. Project Background and Description

The Joe Gqabi District Municipality (JGDM) proposes the development of a bulk water supply scheme (Figure 2-1) utilising the eastern and western tributaries of the Blikana River. The project entails the construction of a dam, abstraction works, a water treatment works (WTW), storage reservoirs and associated rising and gravity main pipelines to supply potable water to Wards 2, 3, 4, 5 and 6 within the Senqu Local Municipality (SLM). The proposed water supply system includes the following key components:

- The Blikana River's eastern and western tributaries will supply water for the scheme.
- A dam will be constructed upstream of abstraction point C-B1.
- Water will be released from the dam and abstracted from a pick-up weir located at C-B2.
- A WTW (7.5 ML/day) will be constructed downstream of abstraction point C-B2, where water will be treated, stored and pumped to the various supply reservoirs.

Reservoirs and supply areas

- Command Reservoir 1 (CR1) – 9 ML: supplies water to Ward 2 and Ward 3 (Northern portion).
- Command Reservoir 2 (CR2) – 2 ML: supplies water to Ward 4 (Western side) and Ward 5.
- Command Reservoir 3 (CR3) – 2.5 ML: supplies water to Ward 4 (Eastern side).

Pipeline infrastructure

The scheme includes a network of rising and gravity mains to convey treated water to villages and reservoirs. Key pipeline components include:

- Rising main from WTW to CR1 and SR1.
- Rising main from WTW to Era Village (± 5.16 km; 200–400 mm steel).
- Rising main middle portion from Era Village via Tlakaneng to Musong Village (± 2.02 km; 150–400 mm steel).
- Rising main at Musong Village tying into SR1 (± 2.05 km; 150–400 mm steel).
- Rising mains from WTW to CR2 and WTW to CR3 (200–400 mm steel).
- Rising main from CR3 to Emqheyen Village (± 6.73 km; 150–400 mm steel).
- Rising main from WTW to SR2 (± 7.18 km; 150–400 mm steel) and an additional rising main segment (± 4.06 km; 150–400 mm steel).
- Gravity main from Henge Village to Magalagaleni Village (± 2.01 km).
- Gravity main from Abstraction Point 2 (± 1.10 km; 50–400 mm; steel/PVC/HDPE).
- Gravity main from CR2 to Blikana Village (± 1.67 km; 50–400 mm; steel/PVC/HDPE).
- Gravity main from CR3 to Ntubeni Village (± 2.84 km; 50–400 mm; steel/PVC/HDPE).

1.2. Alternatives

For the proposed Water Treatment Works (WTW), two site options were considered, namely the preferred WTW site and Alternative 1. These are the only locational alternatives identified for the project components. The relative suitability of these two sites is considered in this report from an animal species perspective, with reference to habitat features, ecological sensitivity and likely disturbance pathways.

1.3. Ecological relevance of the project components

The development is a dispersed, linear and nodal infrastructure scheme extending across a broad area, with components located within a landscape comprising villages, grazing areas, rocky escarpments/cliffs and riparian corridors. From an animal species perspective, the key potential impact pathways are therefore largely associated with the construction phase, including: (i) disturbance and habitat disruption along the linear pipeline corridor and at nodal construction areas, (ii) direct and indirect disturbance associated with cliff/rock features relevant to cliff-associated avifauna (e.g., vultures and large raptors), and (iii) disturbance, sedimentation and pollution risks in proximity to rivers and streams (relevant to riparian-associated fauna such as otters). Operational phase impacts are expected to be more limited, but may include localised disturbance at permanent infrastructure and potential fauna entrapment risks at open water storage structures, depending on final design.

2. Site Location and Description

Blikana Village is a rural settlement located within the Senqu Local Municipality in the Joe Gqabi District Municipality, Eastern Cape Province, South Africa. The village lies near the town of Lady Grey, in the north-eastern part of the province, close to the Lesotho border. The area is characterised by mountainous terrain associated with the southern Drakensberg foothills, with dispersed rural homesteads, subsistence agriculture, and communal grazing forming the dominant land uses. Blikana falls within the upper catchment of the Orange (Gariep) River system and is situated in a predominantly rural landscape marked by high-altitude grasslands and deeply incised valleys typical of the Senqu municipal area.

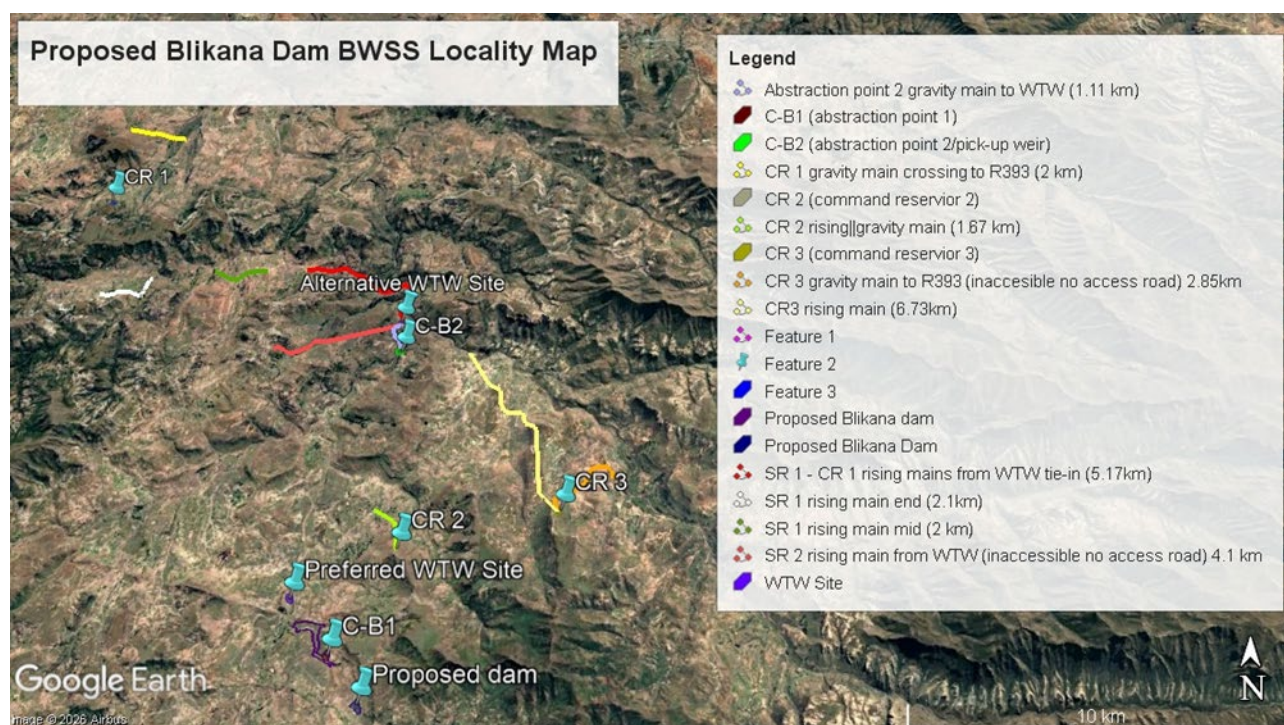


Figure 2-1: Locality map of proposed Blikana Dam Buk Water Supply Scheme

2.1. Terms of Reference

The assessment must be undertaken by a suitably qualified and SACNASP registered specialist, within the preferred development site and on the preferred development footprint. The description of the preferred site must include the following aspects, as a minimum and must be considered in the baseline description:

- The assessment must be undertaken in accordance with the Species Environmental Assessment Guideline and must; identify the SCC which were found, observed or are likely to occur within the study area;
- provide evidence (photographs or sound recordings) of each SCC found or observed within the study area, which must be disseminated by the specialist to a recognized online database facility immediately after the site inspection has been performed (prior to preparing the report contemplated in paragraph 3);
- identify the distribution, location, viability and provide a detailed description of population size of the SCC, identified within the study area;
- identify the nature and the extent of the potential impact of the proposed development on the population of the SCC located within the study area;
- determine the importance of the conservation of the population of the SCC identified within the study area, based on information available in national and international databases, including the IUCN Red List of Threatened Species, South African Red List of Species, and/or other relevant databases;
- determine the potential impact of the proposed development on the habitat of the SCC located within the study area;
- include a review of relevant literature on the population size of the SCC, the conservation interventions as well as any national or provincial species management plans for the SCC. This review must provide information on the need to conserve the SCC and indicate whether the development is compliant with the applicable species management plans and if not, include a motivation for the deviation;
- identify any dynamic ecological processes occurring within the broader landscape that might be disrupted by the development and result in negative impact on the identified SCC, for example, fires in fire-prone systems;
- identify any potential impact of ecological connectivity in relation to the broader landscape, resulting in impacts on the identified SCC and its long term viability;
- determine buffer distances as per the Species Environmental Assessment Guidelines used for the population of each SCC;
- discuss the presence or likelihood of additional SCC including threatened species not identified by the screening tool, Data Deficient or Near Threatened Species, as well as any undescribed species ; or roosting and breeding or foraging areas used by migratory species where these species show significant congregations, occurring in the vicinity; and
- identify any alternative development footprints within the preferred site which would be of “low” or “medium” sensitivity as identified by the screening tool and verified through the site sensitivity verification.

The findings of the Animal Species Impact Assessment must be written up in an Animal Species Impact Assessment Report. This report must include as a minimum the following information:

- Contact details and curriculum vitae of the specialist including SACNASP registration number and field of expertise and their curriculum vitae;
- A signed statement of independence by the specialist;
- Duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;
- A description of the methodology used to undertake the impact assessment and site inspection, including equipment and modelling used where relevant; a description of the mean density of observations/number of sample sites per unit area and the site inspection observations;
- A description of the assumptions made and any uncertainties or gaps in knowledge or data;
- Details of all SCC found or suspected to occur on site, ensuring sensitive species are appropriately reported;
- The online database name, hyperlink and record accession numbers for disseminated evidence of SCC found within the study area;

- The location of areas not suitable for development and to be avoided during construction where relevant;
- A discussion on the cumulative impacts;
- Impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr);
- A reasoned opinion, based on the findings of the specialist assessment, regarding the acceptability or not of the development and if the development should receive approval or not, related to the specific theme being considered, and any conditions to which the opinion is subjected if relevant; and
- A motivation must be provided if there were any development footprints identified as above that were identified as having “low” or “medium” animal species sensitivity and were not considered appropriate.

3. Legal Framework

3.1. Relevant legislation

The proposed development will be subject to the requirements of various items of South African legislation. These are described below.

Table 3-1: Environmental legislation, protocols and guidelines considered in the preparation of this study

Legislation / Policy	Purpose in Context	Application to Animal Species Theme
National Environmental Management Act (NEMA), 1998 (Act 107 of 1998)	Provides the overarching environmental management framework and principles for sustainable development and environmental decision-making.	Provides the legal basis for identifying, assessing and mitigating impacts on animal species as part of the environmental authorisation process.
EIA Regulations, 2014 (as amended) (GN R982 of 2014, as amended)	Regulates the environmental authorisation process, including specialist report requirements and site-specific sensitivity assessment.	Requires specialist biodiversity inputs and compliance with gazetted protocols where triggered by the Screening Tool.
GN 1150 of 2020 (GG 43855): Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Animal Species	Prescribes the methodology, site sensitivity verification process, and minimum reporting requirements for terrestrial animal species assessments.	Governs the Animal Species Assessment and SSV process, including evidence requirements and substantiation of the verified sensitivity outcome.
National Environmental Management: Biodiversity Act (NEMBA), 2004 (Act 10 of 2004)	Provides for biodiversity conservation, ecosystem protection and species management in South Africa.	Requires consideration of Species of Conservation Concern (SCC) and biodiversity conservation objectives during the assessment.
Threatened or Protected Species (TOPS) Regulations, 2015 (as amended)	Regulates restricted activities involving listed threatened or protected species and associated permit requirements.	Relevant if listed threatened/protected fauna are identified during the assessment or later project phases and permits or additional authorisations are required.
National Environmental Management: Protected Areas Act (NEM:PAA), 2003 (Act 57 of 2003)	Provides for the protection and management of protected areas and ecological conservation networks.	Relevant where protected areas, ecological corridors or buffer considerations may influence fauna movement, habitat use or sensitivity in the broader landscape.
Eastern Cape Environmental Conservation Act, 2003 (Act 13 of 2003)	Provides provincial environmental conservation measures within the Eastern Cape.	Provides provincial conservation context relevant to fauna protection and environmental management in the study area.
National Forests Act, 1998 (Act 84 of 1998) (<i>limited relevance</i>)	Protects forests and listed protected tree species.	Indirectly relevant where protected trees or forest habitat may support

Legislation / Policy	Purpose in Context	Application to Animal Species Theme
		animal species or habitat features of conservation importance.
Species Environmental Assessment Guideline (2022, Version 3.1) (<i>guideline; not legislation</i>)	Provides implementation guidance for terrestrial fauna/flora species protocols, including SSV, PAOI, field evidence and reporting expectations.	Supports the approach used for PAOI definition, site inspection timing/seasonality, evidence presentation, and substantiation of sensitivity refinement.

4. Methodology

A literature review and desktop analysis were undertaken prior to the field investigation, utilizing various sources including the South African National Biodiversity Institute (SANBI) data and other relevant sources. Recent and historical aerial imagery of the site was reviewed in order to identify points for investigation during the field survey. Utilising the above information, a field investigation was undertaken whereby:

- Sites of geomorphological or topographic variance were identified and subjected to an evaluation of species present within line transects established across the selected site.
- Species were identified and collated.
- Additional random sample points were selected from other sites surrounding the proposed impacted areas for comparative purposes.
- Any additional species of significance, not identified within the sample sites were also noted.

4.1. Sources of Information (Desktop Inputs)

Prior to the field assessment, maps, aerial/satellite imagery and available biodiversity information were reviewed to identify broad habitat units, disturbed areas, landscape features, and potentially sensitive habitat associated with the proposed development footprint and surrounding PAOI. The following sources were consulted:

- 1:50 000 topographic mapping sourced from the Surveyor General's office;
- Aerial imagery sourced from Google Earth.
- Aerial imagery sourced from ESRI.
- National Web-Based Environmental Screening Tool outputs (including the generated Screening Report and listed animal species sensitivity features);
- Eastern Cape Biodiversity Conservation Plan (ECBCP) (latest available version used in the desktop review);
- SANBI National Vegetation Map (VEGMAP) and associated vegetation/bioregion datasets;
- International Union for Conservation of Nature (IUCN) Red List of Threatened Species;
- NEMBA Threatened or Protected Species (TOPS) Regulations and listed species information;
- CITES listings (where relevant to identified fauna);
- Available conservation and habitat context information relevant to the project area (including avifaunal and mammalian habitat requirements of flagged SCC).
- 1:50 000 topographic mapping sourced from the Surveyor General's office;
- Aerial imagery sourced from Google Earth.
- Aerial imagery sourced from ESRI.

This desktop review informed the identification of potential SCC, habitat suitability considerations, and the design of the field verification survey.

4.2. Site Visit

A site-specific field verification survey was undertaken on 31 January 2026 (summer season). Approximately ~9 hours of field effort were completed across representative nodal infrastructure locations and accessible sections of the linear corridor.

The survey timing is considered suitable for a verification-level animal species assessment because:

- habitat condition and disturbance patterns were clearly observable;
- habitat suitability for the screening-triggered species and other flagged animal sensitivity features could be assessed, including cliff-associated and riparian-associated habitats;
- ecological connectivity and land-use pressures within the footprint and PAOI could be verified in the field; and
- direct and indirect evidence of fauna (where present) could be recorded in accessible areas.

This assessment includes an SSV component and does not constitute a detailed multi-season species inventory. Findings are therefore based on habitat suitability, site condition, disturbance levels, and field observations within the development footprint and defined PAOI. Where uncertainty remains in localised areas due to access constraints or detectability limitations, a precautionary interpretation and construction-phase trigger approach is recommended.

4.2.1. Project Area of Influence (PAOI)

The Project Area of Influence is defined by the important ecosystem processes and functions that may be affected by the proposed development and its activities. The Species Environmental Assessment Guideline (2020) requires that the EAP and Specialists define the taxon-specific Project Area of Influence (PAOI) based on the spatial location of the project (footprint) and the potential extent of the impacts of the anticipated project activities.

For the terrestrial animal species theme, the Project Area of Influence (PAOI) was defined as the spatial extent within which direct and indirect impacts of the Blikana Water Supply Scheme (BWSS) on terrestrial habitats, ecological connectivity and potential SCC could reasonably occur. Given that the BWSS is a dispersed, linear-and-nodal scheme across rugged mountainous terrain, the PAOI was defined using a tiered, pathway-linked approach, rather than treating the entire broader landscape as uniformly affected.

Primary PAOI (direct footprint)

The Primary PAOI comprises the mapped BWSS development footprint, including the dam and abstraction works (C-B1/C-B2), WTW, command reservoirs (CR1–CR3), and the linear pipeline/rising and gravity main corridors and associated construction disturbance footprint (working areas and access where applicable). This is the zone within which direct habitat disturbance and loss may occur.

Secondary PAOI (localised zone of influence around nodes)

A Secondary PAOI was defined around the principal nodal infrastructure locations (dam/abstraction area, WTW/C-B2, and CR1–CR3) to represent the likely zone of indirect effects associated with construction activity and operational presence. For mapping purposes, a 500 m radius was applied around each nodal component (as shown in Figure 4-1). This radius is considered a realistic representation of the likely zone of influence in a mountainous setting and includes potential indirect pathways such as disturbance/edge effects, erosion and runoff mobilisation, invasive alien plant establishment along disturbed edges and access routes, and localised changes in habitat functionality and connectivity.

Receptor habitats explicitly included within the PAOI

In addition to the footprint and nodal influence zones, the PAOI explicitly includes habitat receptors that mediate biodiversity effects. For the animal species theme, the Project Area of Influence (PAOI) includes:

- the proposed development footprint(s) for the dam and associated bulk water supply infrastructure (including reservoirs, rising mains, gravity mains, abstraction points, the WTW and related works areas);
- associated construction disturbance areas, including access routes/tracks, laydown/work areas (where applicable), and immediate edge zones likely to be affected by construction activity;
- rivers and streams occurring within the footprint and PAOI, including riparian zones that may be affected by construction disturbance, sedimentation and pollution pathways (relevant to riparian-associated fauna such as otters); and
- nearby habitat features that may influence animal sensitivity within or immediately adjacent to the footprint (e.g., rocky outcrops and multiple escarpment/cliff features, including locations where infrastructure is proposed on or immediately adjacent to cliff faces/edges).

Although the broader screened area is extensive, the animal species assessment is focused on the mapped development footprint and pathway-linked disturbance zones, as these represent the areas where direct and indirect project impacts are most likely to occur. For this project, anticipated animal-related impacts are expected to be primarily construction-phase impacts (disturbance, habitat disruption, noise and movement, and water quality/sedimentation risks near watercourses), with more limited operational impacts. The PAOI was therefore defined to ensure that:

- the assessment is footprint-focused and impact-linked;
- localised sensitive features adjacent to the footprint (including cliff features and riparian corridors) are considered where relevant; and
- the Screening Tool result is tested against actual site conditions rather than broad-scale mapped sensitivity alone.

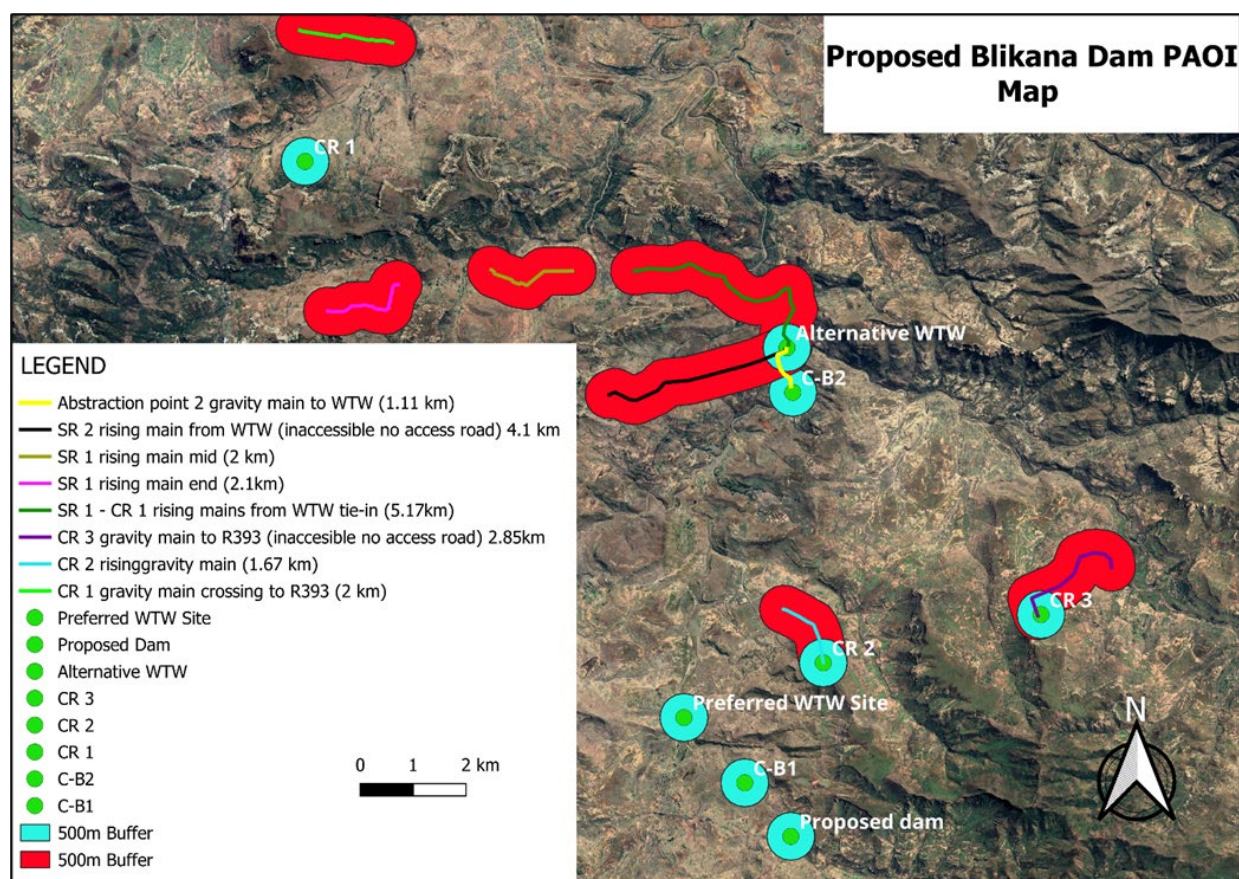


Figure 4-1: PAOI

4.2.2. Field Survey Approach

A field verification survey was undertaken on 31 January 2026 to support the animal species specialist assessment. Given the scale and dispersed nature of the Blikana Water Supply Scheme (nodal infrastructure linked by extensive linear pipelines), the survey was designed to verify animal species sensitivity using a receptor- and habitat-based approach, focusing on habitat features most relevant to SCC occurrence and impact pathways. The survey approach comprised the following components:

- Receptor-focused verification: targeted assessment of cliff faces/edges and cliff-base zones (relevant to cliff-associated avifauna) and riparian corridors, rivers/streams and drainage lines (relevant to riparian-associated fauna and water quality pathways).
- Representative habitat sampling: verification of representative portions of the corridor and nodal infrastructure within key habitat units (e.g., grassland/open habitats and transformed/settlement-influenced areas) to assess habitat condition, disturbance gradients, and connectivity.
- Vantage scanning for avifauna: use of vantage points to scan cliff features for indicators of raptors/vultures (e.g., nest structures, ledge use, whitewash concentrations, feathers/prey remains, and repeated flight activity), acknowledging that wide-ranging avifauna may not be detectable during a single visit.
- Riparian sign searches (where accessible): targeted checks at accessible watercourse sections for signs of riparian-associated fauna (e.g., spraints/latrines, tracks, slides, resting sites), together with assessment of riparian condition and potential construction risk pathways (sedimentation, pollution/spills, bank disturbance).

- Recording and documentation: photographic documentation of representative habitats and sensitivity receptors, and recording of observations and site notes to support interpretation of habitat suitability and sensitivity.

Where safe access allowed, short walk-through checks were undertaken at key nodes and representative corridor sections. In steep or hazardous terrain (including cliff faces), assessments were undertaken from adjacent accessible areas and vantage points.

4.2.3. Field Survey Intensity

The field survey was undertaken at verification-level intensity appropriate to the purpose of this specialist assessment, i.e., to confirm habitat suitability, identify sensitivity receptors and refine Screening Tool outputs at the scale of the footprint and PAOI. Approximately ~9 hours of field effort were completed across representative nodal infrastructure locations and accessible sections of the linear corridor, with emphasis on:

- high-sensitivity receptors (cliff faces/edges and riparian corridors);
- areas of potential pathway interaction (cliff-adjacent infrastructure segments; watercourse crossings/near-water works); and
- disturbance gradients (settlement influence, grazing pressure, existing tracks and transformed areas).

The survey intensity is considered appropriate for BWSS because:

- the development footprint is extensive and linear, making uniform area-based sampling impractical;
- SCC presence cannot be confirmed solely through sightings during a single survey, and therefore the assessment relies on habitat suitability and pathway relevance supported by field verification; and
- access constraints in rugged terrain were managed by applying a precautionary approach and recommending construction-phase verification triggers (including ECO walkdowns and stop-work procedures) where sensitive receptors occur.

Access constraints and coverage: Some sections of the broader corridor and certain cliff faces were not safely accessible. In such areas, habitat continuity, slope/terrain context, and observations from adjacent accessible areas were used to support sensitivity interpretation. This limitation is addressed through conservative mitigation measures and construction-phase verification requirements.

4.3. Identified Animal Species Theme Sensitivity- Screening Report Review

The National Web-Based Environmental Screening Tool is a pre-screening tool used in the environmental authorisation process to identify environmental sensitivities associated with a proposed development footprint. The Screening Report generated in terms of the EIA Regulations (2014, as amended) was reviewed to determine the triggered biodiversity themes and the required assessment pathway for the animal species theme.

For this project, the Screening Tool identified the animal species theme as High sensitivity (Figure 4-2) based on the listed sensitivity features and potential occurrence of SCC (Figure 4-1) within the broader screened area.

In accordance with the species assessment guideline, where the Screening Tool includes a sensitive species unique number, the species name may be withheld in the public domain and must be treated as a sensitive animal species in the report unless formally disclosed through the prescribed SANBI

To support transparent and repeatable sensitivity mapping for the Animal Species Theme, this report applies the Site Ecological Importance (SEI) approach to defined impact receptors (habitat/receptor units) within the PAOI.

SEI is treated as a function of:

- Biodiversity Importance (BI) of the receptor; and
- Receptor Resilience (RR) (ability to resist and/or recover from disturbance).

$$SEI = BI + RR$$

BI is determined from:

- Conservation Importance (CI) (importance for SCC and other biodiversity features of concern); and
- Functional Integrity (FI) (ecological condition, connectivity, and persistent pressures).

$$BI = CI + FI$$

For this animal species specialist report:

- CI is informed by Screening Tool SCC triggers (e.g., Cape Vulture, Verreaux's Eagle, Southern Bald Ibis, Spotted-necked Otter, withheld SCC) and the suitability of the receptor/habitat to support these SCC.
- FI is based on habitat condition, connectivity, degree of fragmentation, and current persistent impacts (e.g., settlement influence, grazing pressure, access tracks, erosion, invasive species).
- RR is based on likely recovery potential after construction disturbance, recognising that cliff faces/ledges and riparian systems generally recover slowly once disturbed.

SEI must be assessed for each impact receptor within the PAOI. For BWSS, the following receptor units are used (assessed separately):

1. Cliff faces/ledges and cliff-edge zone and where infrastructure is located on/at cliffs
2. Cliff influence zone adjacent to cliffs
3. Riparian corridors and watercourses (rivers/streams and associated riparian vegetation)
4. Natural/near-natural grassland/open habitats (foraging and movement habitat)
5. Transformed/settlement-influenced matrix (villages, disturbed verges, existing tracks/roads)

Conservation importance (CI) is evaluated in accordance with recognised established internationally acceptable principles and criteria for the determination of biodiversity-related value, including the IUCN Red List of Species, Red List of Ecosystems and Key Biodiversity Areas (KBA; IUCN [2016]).

Conservation importance is defined here as:

“The importance of a site for supporting biodiversity features of conservation concern present, e.g. populations of IUCN threatened and Near Threatened species (CR, EN, VU and NT), Rare species, range-restricted species, globally significant populations of congregatory species, and areas of threatened ecosystem types, through predominantly natural processes.”

These criteria are defined as follows:

IUCN threatened and Near Threatened species (CR, EN, VU and NT) are defined as either the global or national assessments of the risk of extinction as evaluated by a dedicated panel of species specialists according to the criteria of the International Union for The Conservation of Nature (www.iucnredlist.org).

Where the global and national assessments differ for the same taxon, the national evaluation of status should be used in calculating SEI unless the global assessment is both more recent and of a more threatened category. It is important to note that the specialist is required to have a firm understanding of the IUCN Red List Categories and Criteria (IUCN 2012) in order to appropriately apply these for the evaluation of SEI. This criterion can be assessed using confirmed occurrences of species or the suitability of the habitat to support these species.

Rare species are those included on South Africa's National Red List as Rare or Critically Rare or Extremely Rare. These are highly restricted species that are currently not declining. However, should any development impact on a population of these species they will immediately qualify under one of the IUCN categories of threat.

Range-restricted species – the presence of terrestrial flora, vertebrate and invertebrate fauna with a global population extent of occurrence (EOO) of 10 000 km² or less.

Globally significant populations of congregatory species – a roughly estimated proportion (%) of the global population of a fauna species that congregate for breeding/ feeding/hibernation/other reasons.

Significant areas of threatened vegetation types – this is a function of both the area (size) being considered in relation to the total extent of that vegetation type (i.e. proportion) and how threatened (CR, EN, VU) the vegetation types are.

Natural processes – natural unmanaged areas with low levels of ecological disturbance have largely intact natural processes such as pollination, seed dispersal and migration, and thus have greater intrinsic conservation importance than those that are modified through ecological disturbance.

While most of the features that will be included in the CI will be provided by the screening tool, it is important to note that CI is evaluated at a much finer spatial scale and based on fieldwork data collection and comprehensive desktop analyses performed by the specialist during the EA process. As a minimum requirement, CI needs to be determined for each identified habitat within the project footprint/PAOI.

CI is assigned using the criteria table below based on:

- confirmed or highly likely SCC presence or
- high habitat suitability to support SCC; and/or
- congregatory species use; and/or
- threatened ecosystem/habitat importance where applicable.

Table 4-1: Conservation Importance (CI) criteria (summary)

CI rating	Practical criteria for this animal species assessment
Very High	Confirmed/highly likely occurrence of CR/EN/VU (or extremely rare/critically rare) SCC with very restricted distribution; or irreplaceable SCC habitat feature (e.g., last remaining/unique site).
High	Confirmed/highly likely occurrence of CR/EN/VU SCC; or habitat with strong suitability for SCC with high consequence if disturbed (e.g., cliff faces/ledges suitable for vulture/raptor nesting/roosting; key congregatory features).
Medium	Confirmed/highly likely NT SCC; or habitat where SCC may occur (suitable but not confirmed), and >50% of receptor remains natural and could support SCC.
Low	No confirmed SCC and low likelihood; habitat mostly modified with limited potential to support SCC.
Very Low	No natural habitat remaining; SCC presence highly unlikely.

Furthermore, while CI is most likely to be assessed based on data collected during the fieldwork survey, it can also be an assessment of the suitability of the receptor to support populations conforming to the fulfilling criteria. As can be seen from the worked example below, each of these evaluations of the fulfilling criteria demand necessary justification.

Functional integrity (FI) of the receptor (e.g. the vegetation/fauna community or habitat type) is defined here as the receptors' current ability to maintain the structure and functions that define it, compared to its known or predicted state under ideal conditions. Simply stated, FI is:

'A measure of the ecological condition of the impact receptor as determined by its remaining intact and functional area, its connectivity to other natural areas and the degree of current persistent ecological impacts.'

These criteria can be defined as:

- Connectivity to other natural areas – connectivity, which can also be measured conversely as the degree of habitat fragmentation, refers to how connected habitat patches are to each other, which has a significant influence on numerous ecological process, such as migration and dispersal opportunities of biota and therefore genetic exchange between populations. Connectivity to other similar habitats becomes more important as the remaining intact and functional area of a habitat decreases, mainly because population sizes decrease and are therefore at greater risk from ecological perturbations and inbreeding effects. The degree of connectivity between habitat patches varies greatly with the dispersal ability of the taxon or taxon group (e.g. fossorial reptiles) in question.
- Degree of current persistent negative ecological impacts – persistent negative impacts such as uncontrolled spread of alien and invasive flora effectively decreases both the remaining intact area and ecosystem functioning of a particular habitat.
- Remaining intact and functional area – the proportion of the receptor that supports natural habitat with intact ecological processes – small areas are less likely to withstand ecological degradation compared to large areas, and the latter are therefore better able to maintain structure and function allowing for intact ecological processes.

Table 4-2: Functional Integrity (FI) criteria (summary)

FI rating	Practical criteria (using guideline thresholds/logic)
Very High	Very large intact areas (typically >100 ha) with strong connectivity and minimal persistent impacts.
High	Large intact areas (>20 ha) with good connectivity, limited fragmentation, and only minor persistent impacts.
Medium	Moderate areas (>5 ha) or semi-intact habitat; connectivity reduced; mixed minor and some major impacts; moderate rehab potential.
Low	Small habitat patches (>1–<5 ha) with little connectivity; several persistent impacts; low rehab potential.
Very Low	Very small patches (<1 ha) or heavily degraded; effectively disconnected (except for flying species); major persistent impacts.

SEI = BI + RR

BI in turn is a function of conservation importance (CI) and the functional integrity (FI) of the receptor as follows:

Table 4-3: BI matrix (CI + FI)

Biodiversity importance		Conservation importance				
		Very high	High	Medium	Low	Very low
Functional integrity	Very high	Very high	Very high	High	Medium	Low
	High	Very high	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very low
	Low	Medium	Medium	Low	Low	Very low
	Very low	Medium	Low	Very low	Very low	Very low

Receptor resilience (RR) is defined here as:

‘The intrinsic capacity of the receptor to resist major damage from disturbance and/or to recover to its original state with limited or no human intervention.’

The fulfilling criteria to evaluate RR are based on the estimated recovery time required to restore an appreciable portion of functionality to the receptor (refer to table below) and will require justification by the specialist. The specialist needs to bear in mind that resilience will often be linked to a particular disturbance or impact, or even time of year, and needs to be described in relation to these factors. Receptor resilience needs to be evaluated by the specialist and justification for each evaluation must be provided in the report.

Table 4-4: Receptor Resilience (RR) criteria (summary)

RR rating	Practical criteria
Very High	Rapid recovery (<~5 years) to restore most functionality; or species likely to persist/return readily after disturbance.
High	Recovery within ~5–10 years to restore most functionality.
Medium	Slow recovery (>~10 years) to restore most functionality.
Low	Very slow recovery (>~15 years) and/or recovery unlikely to restore full functionality.
Very Low	Irreversible/near-irreversible loss; recovery not feasible to meaningful ecological state.

Finally, after the successful evaluation of both BI and RR as described above, it is possible to evaluate SEI from the final matrix below.

SEI should be described in the above manner for each impact receptor within the PAOI Interpretation of SEI in the context of the proposed development activities as per table below must be provided by the

specialist. It is very important to note that SEI is specific to the proposed development activities and cannot be meaningfully compared between different proposed projects with different associated activities on the same spatial location. However, SEI for the same proposed development with multiple alternative layouts and/or locations may be compared within the same study.

The following sensitive species were listed in the screening report and special focus was placed on these species, their habitat, presence and signs of their existence on the site during the site survey:

Aves-Gyps coprotheres – High

Sensitive species 29 – Medium

Aves-Aquila verreauxii – Medium

Aves-Geronticus calvus – Medium

Mammalia-Hydrictis maculicollis – Medium

Table 4-5: SEI matrix (BI + RR)

Site ecological importance		Biodiversity importance				
		Very high	High	Medium	Low	Very low
Receptor resilience	Very low	Very high	Very high	High	Medium	Low
	Low	Very high	Very high	High	Medium	Very low
	Medium	Very high	High	Medium	Low	Very low
	High	High	Medium	Low	Very low	Very low
	Very high	Medium	Low	Very low	Very low	Very low

4.4.1. SEI results for BWSS receptors

This table summarises the Site Ecological Importance (SEI) assessment outputs for the animal species theme, as derived through the SEI calculation process applied to the defined impact receptors/habitat units within the PAOI. The SEI process considers Biodiversity Importance (BI)—informed by Conservation Importance (CI) and Functional Integrity (FI)—together with Receptor Resilience (RR) to produce an overall SEI/sensitivity outcome for each receptor. The criteria below explain how Conservation Importance is interpreted in this assessment and form the basis for assigning CI ratings during the SEI evaluation (using confirmed occurrences where available and/or habitat suitability where species were not directly observed).

Table 4-6: SEI evaluation for animal receptors in the BWSS PAOI

Receptor unit	CI	FI	BI (from CI×FI matrix)	RR	SEI (from BI×RR matrix)	Key justification (short)
Cliff faces/ledges & cliff-edge zone	High	Medium	Medium	Low	High	Direct interaction with cliff habitat; suitable cliff-associated SCC habitat; high disturbance consequence; low recovery potential once disturbed.
Cliff influence zone	Medium	Medium	Medium	Medium	Medium	Adjacent to cliff features; disturbance pathway likely (noise/visual/activity); SCC use cannot be excluded; moderate recovery if disturbance is controlled.
Riparian corridors / rivers & streams	Medium	Medium	Medium	Medium	Medium	Watercourses present; other pathway applicable; sensitive to sedimentation/pollution ; moderate recovery if riparian integrity is maintained and rehabilitated.
Natural/near-natural grassland/open habitats	Medium	Medium	Medium	Medium	Medium	Potential foraging/movement habitat for avifauna; variable condition due to grazing/settlement pressures; recoverable with rehabilitation controls.
Transformed/settlement-influenced matrix	Low	Low	Low	Medium	Low	High existing disturbance and fragmentation; limited remaining natural habitat; low SCC habitat value; impacts largely incremental.

Table 4-7: Interpreting SEI for BWSS activities (what each SEI means for design/mitigation)

SEI rating	Interpretation for BWSS activities
Very High	Avoidance is mandatory; destructive activities should not be considered; offset not acceptable/not feasible.
High	Avoidance wherever feasible (micro-siting/rerouting); if not avoidable, only low-impact activities may proceed with strict controls; offsets may be required for high-impact unavoidable impacts.
Medium	Minimise and rehabilitate/restore; medium-impact activities may proceed with strong mitigation and effective rehabilitation.
Low	Minimise and rehabilitate; medium to high impact activities may be acceptable if rehabilitated appropriately.
Very Low	Minimise; restoration may not be required (already highly transformed).

4.4.2. WTW Site Alternatives

The proposed WTW is the only project component for which a locational alternative was considered. Two possible WTW sites were assessed, namely the preferred WTW site and Alternative 1 (Figure 4-2). From an animal species perspective, both sites occur within habitat of relatively low local ecological complexity and neither site represents a strongly sensitive fauna receptor when compared to the more important habitats within the broader BWSS project area, such as rocky escarpments/cliffs and riparian corridors.

The preferred WTW site is located within an area currently used as grazing fields, where there is evidence of previous cultivation and historical disturbance. As a result, the site is already altered and supports relatively low structural habitat diversity for terrestrial fauna. In animal species terms, the site is likely to provide only limited foraging or transient movement habitat for common disturbance-tolerant fauna, and does not appear to represent an important refuge, breeding site or movement bottleneck for Species of Conservation Concern.

Alternative 1 is located on an area characterised largely by bare soil patches and rock substrate, and similarly appears to be of low intrinsic habitat value for most terrestrial animal species. In strictly habitat-quality terms, there is therefore little difference between the two sites. However, Alternative 1 is associated with dongas and drainage line features, which introduce additional ecological considerations. These features may function as localised movement pathways, shelter opportunities, or microhabitats for certain fauna, and may also increase the likelihood of erosion, sediment transport and disturbance spreading into adjacent habitat areas if the site is developed.

Although the difference between the two WTW sites is not substantial in terms of broad animal habitat value, the preferred WTW site is considered the more suitable option from an animal species perspective. This is because it is located in a previously disturbed grazing/cultivation area, whereas Alternative 1 is associated with dongas and drainage features that increase local habitat complexity and the likelihood of indirect disturbance pathways. These drainage-linked features are relevant to fauna because they may provide microhabitat, cover, or movement opportunities for small mammals, reptiles, amphibians and other disturbance-sensitive species.

On this basis, the preferred WTW site is supported as the preferred option from an animal species perspective. While both alternatives are of generally low fauna sensitivity relative to the more important cliff and riparian receptors in the broader project area, the preferred site is considered to present the lower ecological risk because it is more clearly associated with already disturbed terrestrial habitat and avoids the drainage-linked features present at Alternative 1.

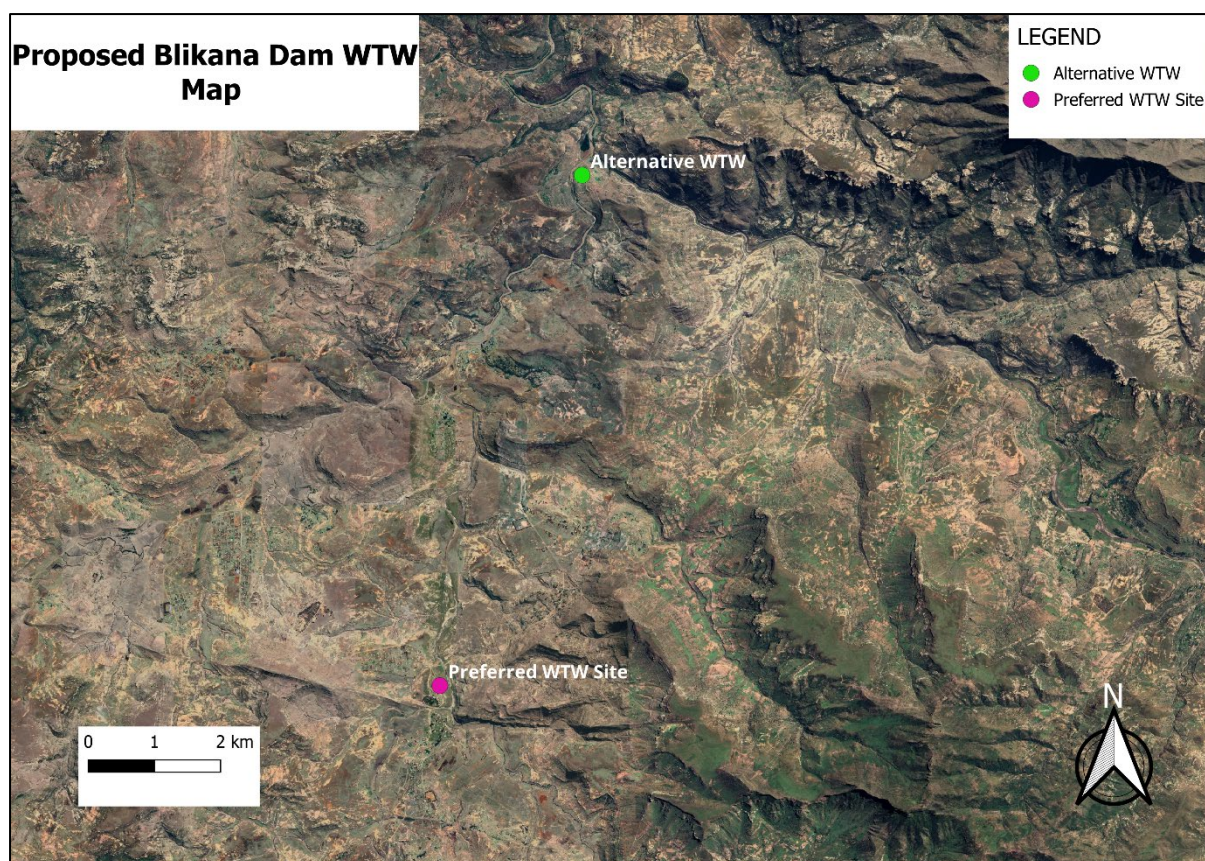


Figure 4-2: WTW site alternatives

4.5. Assumptions, Limitations and Gaps in Knowledge

The following assumptions, uncertainties and gaps in knowledge are relevant to the interpretation of this Blikana Water Supply Scheme Animal Species Specialist Report and the sensitivity/SEI outcomes presented:

1. Specialist assessment scope and intensity: This specialist assessment includes a Site Sensitivity Verification (SSV) component and a pathway-based specialist interpretation for the preferred development footprint and PAOI. It is not a multi-season, long-term monitoring study and does not constitute an exhaustive terrestrial fauna inventory across the entire broader landscape.
2. Footprint- and PAOI-based applicability: The findings, sensitivity outcomes and SEI interpretation apply to the preferred development footprint and defined PAOI assessed in this report. Conclusions should not be interpreted as applying uniformly to the broader landscape beyond the assessed footprint/PAOI.
3. Linear infrastructure footprint assumption (15 m corridor): The project includes extensive linear infrastructure. Where pipelines/rising mains/gravity mains are represented as centre-lines, a 15 m construction corridor width was assumed for footprint quantification and PAOI delineation. If the final construction corridor width differs materially, the magnitude of habitat disturbance and certain sensitivity outcomes may require re-validation.
4. Access and terrain constraints: The broader study area is extensive and includes rugged terrain and cliff features. Some portions of the footprint/PAOI were not fully accessible during fieldwork due to safety, terrain and access constraints. Where access was constrained, observations from adjacent accessible areas, habitat continuity, desktop interpretation, and a precautionary approach were applied.

5. Single-season site verification: Field verification was undertaken on 31 January 2026 (summer). Species detectability varies with season, weather, breeding cycles and daily activity patterns. The assessment outcome is therefore based on habitat suitability, disturbance condition and field evidence available at the time of survey. The timing of the survey is therefore regarded as optimal in terms of accurately assessing the fauna of the site.
6. Cliff-associated sensitivity and uncertainty: Suitable cliff/rock habitat occurs within the PAOI and portions of the proposed infrastructure are located on or immediately adjacent to cliff faces/edges. While no confirmed active nesting/roosting evidence for cliff-associated SCC was recorded in accessible areas during the site visit, the presence of suitable habitat means SCC use cannot be excluded. The report therefore adopts a precautionary approach with enhanced mitigation, buffer application and construction-phase triggers for cliff-face/cliff-edge sections.
7. Rivers and streams within the PAOI: Rivers and streams occur within the PAOI and are relevant to riparian-associated fauna pathways (e.g., Spotted-necked Otter). The extent of suitable otter habitat and activity patterns cannot be fully confirmed from a single verification survey; accordingly, riparian buffer controls and water-quality protection measures are applied as precautionary requirements.
8. Withheld screening species information: The National Web-Based Environmental Screening Tool includes a medium-sensitivity feature listed as "Sensitive species 29" for which the species name is withheld in the public screening output. This trigger was treated conservatively as valid, and a habitat- and pathway-based precautionary approach was applied in the absence of species-specific information until the species identity is confirmed through the appropriate request process.
9. Reliance on available desktop and screening information: The presence of fauna must be evaluated based on the literature and available databases but in many cases, these databases are not intended for fine-scale use and the reliability and adequacy of these data sources relies heavily on the extent to which the area has been sampled in the past. Many areas have not been well sampled with the result that the species lists derived for the area do not always adequately reflect the actual fauna and flora present at the site.
10. No SCC evidence recorded during the site visit: No SCC individuals, nests, roosts, dens or other direct indicators of SCC use were recorded within accessible surveyed areas on the survey date. This reflects conditions observed at the time of survey and does not exclude occasional, transient or seasonal use of the landscape, particularly by wide-ranging avifauna.
11. Assumptions regarding key risk pathways: It is assumed that no blasting will be undertaken and that the project will not require new overhead electrical distribution lines. If blasting is introduced or overhead lines become necessary, risk pathways for cliff-associated avifauna would increase and additional specialist assessment would be required.
12. The assessment was undertaken using sampling methods appropriate to the protocols, terms of reference and methodologies described above.
13. The overall condition of the vegetation can still be determined with a high degree of confidence. An accurate idea of the priority conservation areas, animals and botanical species was gained, due to the use of a combined habitat and species-based approach, and confidence in the accuracy of the findings is high. The overall confidence in the completeness and accuracy of the animal species findings at this point in time is considered to be good. A follow-up survey is not considered essential for decision-making.

5. Description of the Receiving Environment

5.1. Land Use

According to National Landcover map, the proposed BWSS project is mostly located in a Natural area (undeveloped), with some portion in degraded areas (Figure 5-1). Also, the area is used as cattle grazing land by the local communities. Interpretation of the National Land-Cover (NLC 2020) layer and recent high-resolution imagery indicates that:

- About 50% of the proposed BWSS sites are within natural area, and the other half is within degraded areas. Natural areas are undeveloped. The area is arid; vegetation is bare grass with some bushes and shrubs. Bare rock is dominant throughout the site.
- Agricultural Grazing: The site is actively used for livestock (cattle, sheep, goats and horses) grazing, with visible trampling, soil compaction, and browsing of remnant shrubs.
- The area where the sites are located practices subsistence farming.
- No wildlife was observed.

In conclusion, the proposed BWSS sites occur within an arid landscape characterised by sparse grass cover, scattered shrubs, and dominant exposed rock, with approximately half situated in natural but undeveloped areas and the remainder in already degraded areas. The land is primarily used for subsistence grazing, with active livestock (cattle, sheep, goats, and horses) contributing to trampling, soil compaction, and browsing pressure on remnant vegetation. No wildlife was observed during the site assessment, and overall, the ecological sensitivity of the area is considered low to moderate due to existing disturbance and limited vegetation structure.

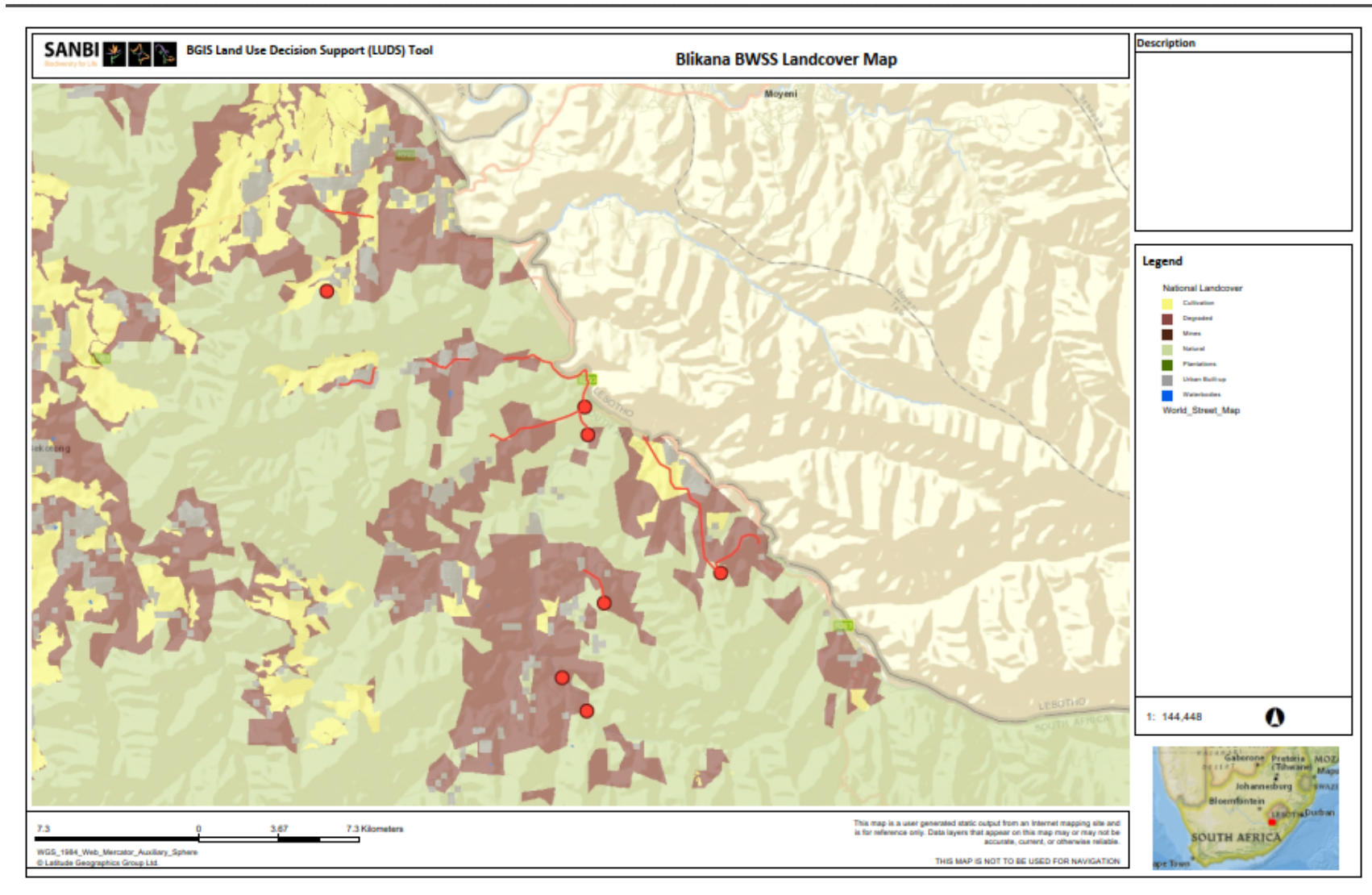


Figure 5-1: Land Cover Map of the proposed Blikana Dam BWSS

5.2. Climate

The Blikana River area, located near Sterkspruit in the Eastern Cape, experiences a semi-arid to temperate interior climate. Summers (October–March) are warm to hot, with average daytime temperatures ranging between 25–32°C and occasional thunderstorms contributing most of the annual rainfall. Winters (May–August) are cold and dry, with temperatures frequently dropping below 5°C at night and frost common in low-lying areas. Annual rainfall generally ranges between 400–600 mm, occurring mainly in summer, while winters are typically dry with clear skies and strong winds. The climate is characterised by high evaporation rates, seasonal rainfall variability, and periodic droughts, all of which influence river flow patterns and water resource availability in the Blikana catchment.

5.3. Topography and landscape features

The topography of Blikana is characterised by a rugged and undulating landscape typical of the eastern interior highlands. The topography consists of rolling hills, dissected valleys, and elevated plateaus, with steep slopes occurring along river corridors and tributaries. Rocky outcrops and shallow soils are common, particularly on hilltops and upper slopes, while deeper alluvial soils occur along drainage lines. The landscape is largely open and expansive, shaped by erosion processes, seasonal water flow, and long-term grazing activities, resulting in a mosaic of grass-dominated areas, scattered shrubs, and exposed rock surfaces.

5.4. Geology and soils

Blikana geology is underlain predominantly by sedimentary rocks of the Karoo Supergroup, mainly sandstones and mudstones, with occasional dolerite intrusions that form resistant ridges and rocky outcrops (Figure 5-2). These geological formations contribute to the undulating to rugged terrain and influence drainage patterns within the catchment. Soils are generally shallow, stony, and moderately to poorly developed on upper slopes and hilltops, while deeper, more fertile alluvial soils occur along valley bottoms and drainage lines. Due to the semi-arid climate and grazing pressure, soils in many areas show signs of compaction and erosion, particularly where vegetation cover is sparse.

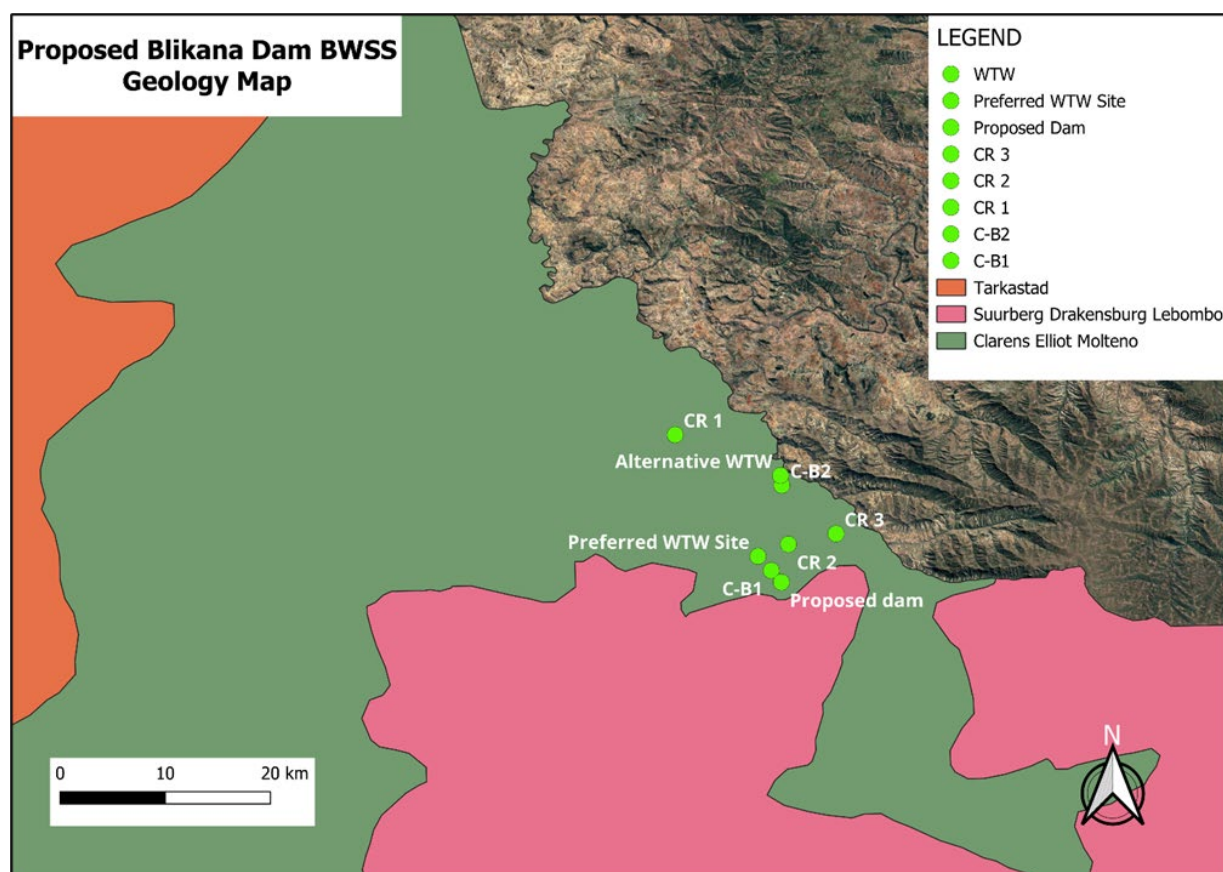


Figure 5-2: Geology Map of Study Area

5.5. Vegetation

According to SANBI, the proposed Blikana Dam BWSS vegetation unit is the Senqu Montane Shrubland Gm 2 and the Zastron Moist Grassland Gm 1 (Figure 5-3). Both vegetation types mainly occurring in Lesotho, the Eastern Cape and Free State. Both grasslands are listed as least threatened under South African National Biodiversity Institute 2021. The grassland biome covers an area of 28% of South Africa's land surface (Carbutt and Kirkman, 2022) and is the second largest biome in the country (SANBI 2013). Vegetation and landscapes include grasses, forbs, rivers and wetlands.

Senqu Montane Shrubland

The Senqu Montane Shrubland is a high-altitude vegetation type occurring mainly in the north-eastern interior of the Eastern Cape, particularly within the Senqu (Upper Orange) River catchment. It is typically found on mountain slopes, plateaus, and rocky ridges at elevations above $\pm 1,500$ m. The vegetation is characterised by low, hardy shrubs interspersed with grasses and forbs, adapted to cold winters, frost, strong winds, and relatively low rainfall. Soils are generally shallow and stony, derived from sandstone and mudstone formations, which limits dense plant growth.

This vegetation type supports grazing activities but is sensitive to overgrazing, which can lead to soil erosion and shrub encroachment. Ecologically, it plays an important role in water catchment protection, erosion control, and providing habitat for high-altitude fauna and endemic plant species.

Conservation: Least threatened. Target 28%. None conserved in statutory conservation areas. Some 14% already transformed for cultivation. Wood collection is putting this vegetation under severe pressure. Accessible areas have been severely degraded and the shrubland has been reduced. Erosion (ranging across large scales of intensity), caused by degradation of the shrubland vegetation, has resulted in the formation of dongas that cut back into the valleys, destroying the remaining riparian *vegetation* in places. Much of the upper reaches of this vegetation unit will disappear should the planned

further phases (II, III and IV) of the Lesotho Highlands Water Project be implemented and result in the construction of the Mashai, Tsoelike and Ntoahae Dams.

Zastron Moist Grassland

Characterised a high-altitude grassland vegetation type occurring mainly along the border of the north-eastern Eastern Cape and the southern Free State, particularly around the town of Zastron. It forms part of the broader Grassland Biome and is typically found on elevated plateaus and gently undulating plains at altitudes of approximately 1,400–1,800 m.

The vegetation is dominated by dense, moist, sour grassland with relatively high grass cover and few woody species. Common grasses include *Themeda triandra*, *Eragrostis curvula*, *Festuca caprina*, and *Heteropogon contortus*, while forbs are diverse and often seasonally abundant. The area receives summer rainfall and experiences cold, frosty winters, which influence species composition and growth patterns.

Soils are generally moderately deep and derived from sandstone and mudstone formations, supporting productive grazing lands. As a result, much of this vegetation type has been transformed or impacted by livestock grazing and agriculture. Ecologically, Zastron Moist Grassland is important for water regulation, soil conservation, and supporting grassland-dependent fauna, but it is sensitive to overgrazing, cultivation, and infrastructure development.

Conservation: Vulnerable. Target 24%. None conserved in statutory conservation areas and only very small portion protected in private Vulture Conservation Area. Almost a third already transformed by cultivation or by urban sprawl. Erosion high (45%), moderate (26%), very high (19%) and low (10%).

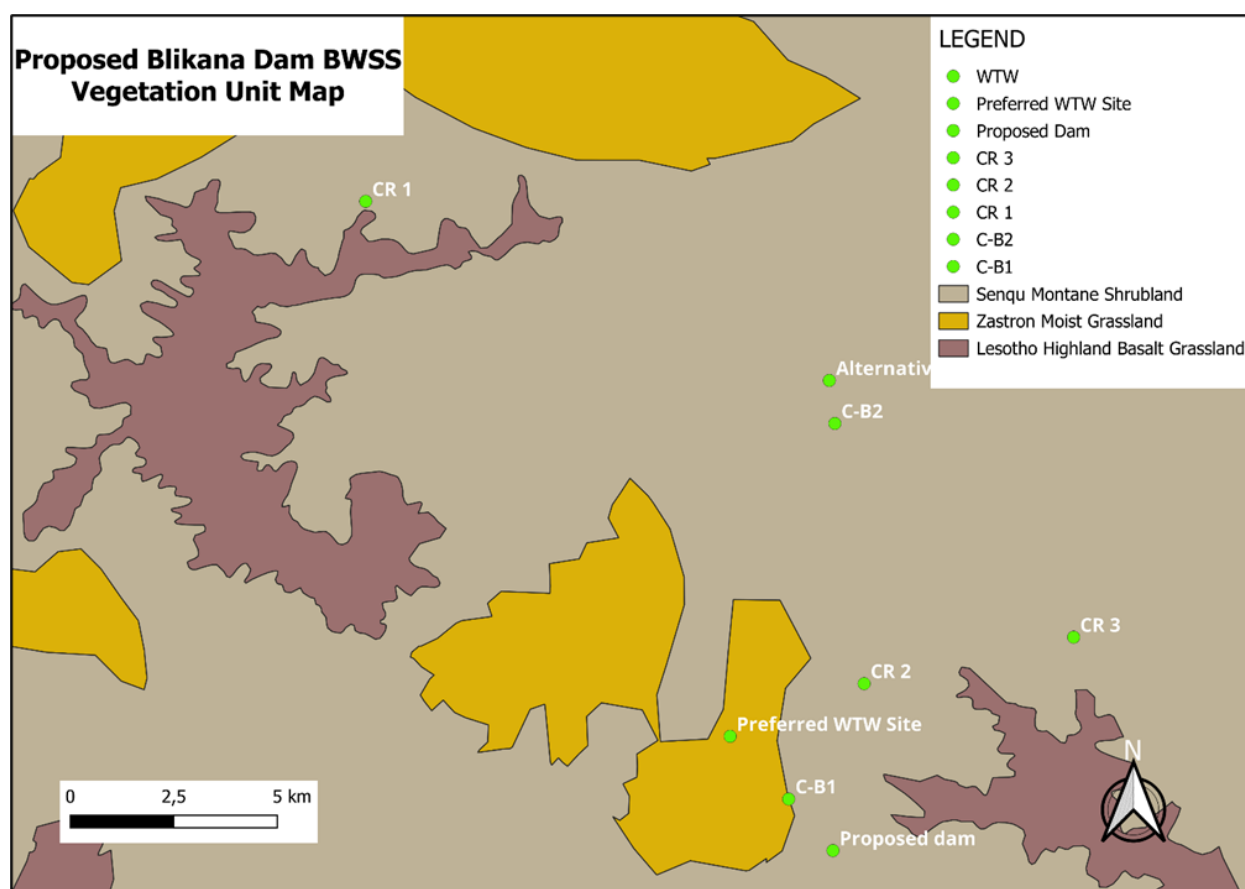


Figure 5-3: Vegetation of the study site and surrounding areas

5.6. Biodiversity

The Eastern Cape Biodiversity Conservation Plan (ECBCP) (2019) replaces the ECBCP (2007) in its entirety and provides a map of important biodiversity areas, outside of the Protected Areas network, which must be used to inform land use and resource-use planning and decision making. The objectives of the ECBCP (2019) are to:

- 1) Identify the minimum spatial requirements needed to maintain a living landscape that continues to support all aspects of biodiversity and retain/maintain essential ecological infrastructure. This is achieved through the selection of areas, based on achieving targets, which represent important biodiversity pattern AND ecological processes;
- 2) Serve as the primary source of biodiversity information for land use planning and decision making; and
- 3) Inform conservation and restoration action in important biodiversity areas.

The aim of the ECBCP (2019) was to map biodiversity priority areas through a systematic conservation planning process. The main outputs of the ECBCP include Protected Areas (PA), Critical Biodiversity Areas (CBA), Ecological Support Areas (ESA), Other Natural Areas (ONA) and No Natural Habitat Remaining (NNR) for both terrestrial and aquatic ecosystems. The ECBCP (2019) has been adopted by DEDEAT as a systematic biodiversity plan for the Eastern Cape Province. According to the ECBCP 2019, the study sites are located within the Terrestrial ESA 1 ECBCP (Figure 5-4).

Although ECBCP is mapped at a finer scale than the National Spatial Biodiversity Assessment (Driver *et al.*, 2005) it is still, for the large part, inaccurate and “coarse”. Therefore, it is imperative that the status of the environment, for any proposed development must first be verified before the management recommendations associated with the ECBCP are considered (Berliner and Desmet, 2007). No fine-scale plans are yet available for the study area. According to the ECBCP 2019 Handbook, the following management objectives apply to ESAs.

Table 5-1: Management objectives for ECBCP ESAs

CBA MAP CATEGORY	MANAGEMENT OBJECTIVES
ESA 1	<p>Maintain ecological function within the localised and broader landscape. A functional state in this context means that the area must be maintained in a semi-natural state such that ecological function and ecosystem services are maintained. For areas classified as ESA1, the following objectives apply:</p> <ul style="list-style-type: none"> • These areas are not required to meet biodiversity targets, but they still perform essential roles in terms of connectivity, ecosystem service delivery and climate change resilience. • These systems may vary in condition and maintaining function is the main objective, therefore: <ul style="list-style-type: none"> → Ecosystems still in natural, near natural state should be maintained. → Ecosystems that are moderately disturbed/degraded should be restored.

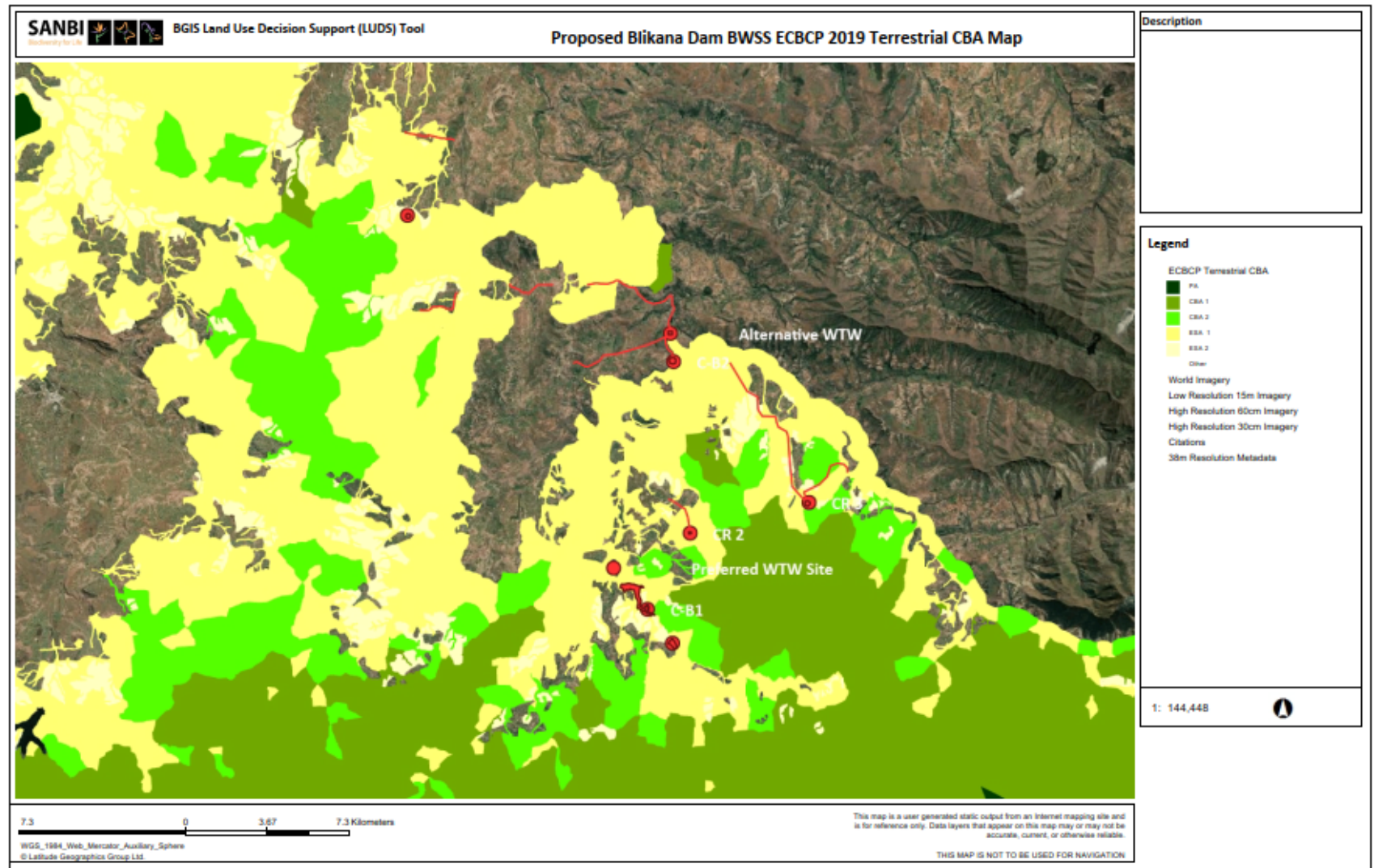


Figure 5-4: Blikana Dam BWSS ECBCP 2019 CBA Map (ESA1)

6. Description of the Animal (Fauna) Species

Fauna occurring on site include assemblages within the terrestrial ecosystem and these includes mammals, birds, reptiles, amphibians and invertebrates.

6.1. Identify the SCC Which Were Found, Observed or Are Likely to Occur Within the Study Area

No Species of Conservation Concern (SCC) were observed during the field verification survey undertaken on 31 January 2026 within accessible areas of the Blikana Water Supply Scheme development footprint and defined PAOI. No confirmed nests, roosts, breeding colonies, dens or other direct indicators of SCC use were recorded at the time of the site visit. The absence of observed SCC during the survey does not confirm absence, particularly for wide-ranging avifauna and cryptic or nocturnal taxa, and therefore a habitat- and pathway-based approach is applied.

6.1.1. Animal Species Observed on Site

Below is a list of animals observed on during the various assessments. None of these animals are SCC.

Avifauna

Yellow Canary (*Crithagra flaviventris*)

Blackbill Yellow Bishop (*Euplectes capensis approximans*)

Red-eyed Dove (*Streptopelia semitorquata*)

Red-winged Starling (*Onychognathus morio*)

Mammals

Yellow Mongoose (*Cynictis penicillata*)

Rock Hyrax (Dassie) (*Procavia capensis*)

Horses (*Equus caballus*)

Cattle (*Bos taurus*)

Sheep (*Ovis aries*)

Reptiles

Southern Rock Agama (*Agama atra*)

Cape Girdled Lizard (*Cordylus cordylus*)

Amphibians

Common River Frog (*Amietia delalandii*)

Invertebrates

African Monarch (*Danaus chrysippus*)

Blue Pansy (*Junonia oenone*)

Elegant Grasshopper (*Zonocerus elegans*)

6.1.2. SCC likely or potentially present within the study area

Based on the screening outputs and known regional distributions, the following SCC are considered likely to occur within the study area or its immediate surrounds:

- Cape Vulture (*Gyps coprotheres*) – flagged by the Screening Tool as a high-sensitivity feature and potentially present in the broader landscape where suitable cliff roosting/nesting habitat occurs.
- Verreaux's Eagle (*Aquila verreauxii*) – flagged by the Screening Tool as medium sensitivity and associated with rocky escarpments/cliffs for nesting and roosting and adjacent open habitats for foraging.
- Southern Bald Ibis (*Geronticus calvus*) – flagged by the Screening Tool as medium sensitivity; associated with open grassland foraging habitats and may utilise cliff/ledge features for nesting in suitable landscapes.
- Spotted-necked Otter (*Hydrictis maculicollis*) – flagged by the Screening Tool as medium sensitivity; associated with rivers and streams with suitable riparian habitat and water quality. Rivers and streams occur within the study area; therefore presence cannot be excluded.
- Withheld SCC ("Sensitive species 29") – flagged by the Screening Tool as medium sensitivity. As the species identity is withheld in the public output, the assessment treats this trigger conservatively and applies habitat/pathway-based mitigation in relevant sensitivity areas until the species is confirmed through the appropriate request process.

6.1.3. SCC occurring in the broader regional context

The Blikana scheme falls within the wider Sterkspruit / Southern Drakensberg regional context, which is known to support a range of threatened and near-threatened fauna. While these species were not observed during the site visit and may not all be likely within the footprint, they provide important context for potential occurrence in suitable habitats within the broader landscape.

The list of SCC considered likely or potentially occurring in the broader regional context (Sterkspruit and the Southern Drakensberg) is informed by available occurrence-record platforms and conservation sources, including SABAP2 and iNaturalist (citizen-science and curated observation records), as well as BirdLife South Africa resources and Avibase. These sources provide regional context and indicate potential occurrence; however, actual presence within the project footprint/PAOI is evaluated in this report using site-verified habitat suitability, impact pathways, and field observations.

Regional SCC recorded for the area but not observed on site include:

Sterkspruit regional SCC (not observed during survey):

- Cape Griffon / Cape Vulture (*Gyps coprotheres*) – EN
- Southern Bald Ibis (*Geronticus calvus*) – VU
- Ground Woodpecker (*Geocolaptes olivaceus*) – NT
- Sentinel Rock-Thrush (*Monticola explorator*) – NT

Southern Drakensberg SCC (not observed during survey):

- Black Stork (*Ciconia nigra*) – EN
- Grey Crowned Crane (*Balearica regulorum*) – EN
- Blue Crane (*Grus paradiseus*) – VU
- Wattled Crane (*Grus carunculatus*) – VU
- Southern Ground Hornbill (*Bucorvus leadbeateri*) – VU
- Southern Bald Ibis (*Geronticus calvus*) – VU
- Red-footed Falcon (*Falco vespertinus*) – VU

- Secretarybird (*Sagittarius serpentarius*) – EN
- Bearded Vulture (*Gypaetus barbatus*) – NT
- Cape Griffon / Cape Vulture (*Gyps coprotheres*) – EN
- Black Harrier (*Circus maurus*) – EN
- Denham's Bustard (*Neotis denhami*) – NT
- Blue Korhaan (*Eupodotis caerulescens*) – NT
- Sentinel Rock-Thrush (*Monticola explorator*) – NT
- Bush Blackcap (*Sylvia nigricapillus*) – VU
- Drakensberg Rockjumper (*Chaetops aurantius*) – NT
- Mountain Pipit (*Anthus hoeschi*) – NT
- Yellow-breasted Pipit (*Hemimacronyx chloris*) – VU

Mammals (Southern Drakensberg regional SCC):

- Mountain Reedbuck (*Redunca fulvorufula*) – EN
- Grey Rhebok (*Pelea capreolus*) – NT

Insects (Southern Drakensberg regional SCC):

- *Conocephalus basutoanus* – EN

These regional SCC are most relevant where the project footprint intersects or occurs near key receptor habitats such as cliffs/escarpments, riparian corridors, and open grassland habitats. The species-by-species assessment sections that follow focus on the SCC most plausibly linked to receptors within the PAOI and the project's impact pathways (notably cliff-associated avifauna and riparian-associated fauna).

6.2. Provide Evidence (Photographs or Sound Recordings) Of Each SCC Found or Observed Within the Study Area

No SCC were recorded or observed at the time of the survey or likely to be impacted upon due to the small habitat loss that will occur.

Notwithstanding the above, a photographic record of representative habitats, sensitivity features and conditions was captured during the site visit (including cliff/rock features, riparian corridor, grassland/open habitats etc.). This habitat evidence is provided below



Figure 6-1: Rocky escarpment/cliff habitat – suitable potential roosting/nesting habitat for cliff-associated avifauna (e.g., Cape Vulture and Verreaux's Eagle).



Figure 6-2: River/stream within study area – riparian/aquatic habitat relevant to riparian-associated fauna pathways (e.g., Spotted-necked Otter) and sensitive to sedimentation/pollution.

6.3. the online database name, hyperlink and record accession numbers for disseminated evidence of SCC found within the study area

No SCC were observed during the site visit; therefore, no SCC photographic or audio evidence was available for submission and no accession numbers could be generated. Should any SCC be recorded during pre-construction walkdown or construction monitoring, evidence will be captured where feasible,

uploaded to the relevant databases, and the database name and accession number(s) will be provided in an addendum and/or recorded in the EMPr compliance file.

6.4. Identify the Distribution, Location, Viability and Provide a Detailed Description of Population Size of the SCC

No SCC populations were confirmed within the study area during the site survey, therefore population size and on-site viability cannot be described as confirmed populations. The project area contains suitable habitat receptors (notably cliffs and riparian corridors) that can support SCC known from the broader regional context and/or flagged by the Screening Tool.

As a result, this report treats SCC occurrence as potential (habitat-based) and manages uncertainty through avoidance/micro-siting, buffer application, and construction-phase verification triggers, particularly where infrastructure occurs on or very near cliff faces/edges and where works occur near rivers/streams.

6.5. Identify the Nature and the Extent of the Potential Impact of the Proposed Development on the Population of the SCC

No SCC populations were confirmed within the footprint/PAOI during the field survey. Because SCC populations were not confirmed within the footprint/PAOI during the survey, the potential population-level implications are expressed as risk to potential use of suitable habitat receptors rather than quantified demographic impacts.

Construction phase – nature and extent of potential impacts

Construction is expected to represent the period of greatest risk to SCC due to higher disturbance intensity, vegetation clearance, earthworks, increased human presence and vehicle activity.

A) Cliff-associated avifauna (e.g., Cape Vulture, Verreaux's Eagle, and other cliff/ledge users)
Nature of impact:

- Direct disturbance and habitat disruption where infrastructure is located on or immediately adjacent to cliff faces/edges (risk of disturbing roosting/nesting habitat if present).
- Behavioural displacement caused by noise, human activity, and repeated access near cliff features, potentially leading to avoidance of cliff sections used for roosting/nesting.
- Increased mortality risk indirectly through construction activity (e.g., disturbance-related injury) and potential attraction to waste if poorly managed.

Extent of impact:

- Localised to cliff-associated receptor units within and immediately adjacent to the footprint/PAOI, particularly where linear infrastructure segments and nodal components occur on cliff faces/ledges or within close proximity to cliff edges.
- Spatially, the impact zone is confined to those cliff features and their immediate disturbance influence area, rather than the entire project area.

B) Riparian-associated SCC (e.g., Spotted-necked Otter) and riparian receptors
Nature of impact:

- Habitat disturbance and potential degradation of riparian corridors during access creation, trenching near watercourses, and any crossing works.
- Sedimentation and water quality impacts from exposed soils, erosion, and accidental spills (fuel/oil/cement) entering rivers/streams.

- Disturbance effects (noise, human presence) potentially causing temporary avoidance of watercourse sections.

Extent of impact:

- Localised to watercourses within the footprint/PAOI, especially where construction works occur near or across rivers/streams.
- Effects may extend downstream if sedimentation or pollution occurs; therefore, the extent is managed through mandatory buffers, erosion controls, and spill prevention/response.

C) Grassland/open habitats used for foraging (e.g., Southern Bald Ibis and other grassland SCC)

Nature of impact:

- Temporary disturbance/displacement from construction movement and noise.
- Habitat loss/fragmentation where natural grassland within the corridor is cleared or compacted.
- Increased access may elevate longer-term disturbance and erosion if not controlled.

Extent of impact:

- Primarily confined to the construction corridor and nodal footprints, with indirect effects in the adjacent disturbance zone during construction.
- This impact is expected to be more pronounced where relatively intact grassland patches occur, and lower in already transformed/settlement-influenced areas.

D) Withheld SCC (Sensitive species 29)

Nature of impact:

- Species-specific impact pathways cannot be fully described until identity is confirmed.
- Potential impacts are therefore treated conservatively using habitat-based risk management, particularly in high sensitivity patches and key receptors (cliffs and riparian areas).

Extent of impact:

- Potentially localised to the receptor/habitat type associated with the withheld species. Until confirmed, the extent is managed by avoidance/micro-siting, footprint discipline, and the fauna encounter procedure.

Operational phase – nature and extent of potential impacts

Operational impacts are expected to be lower intensity than construction-phase impacts but may include:

A) Persistent disturbance at permanent infrastructure

- Ongoing presence and maintenance activities at the WTW, reservoirs and abstraction works may cause low-level disturbance and human activity footprints, generally localised to those facilities.

B) Changes to habitat around the dam/reservoir

- Where reservoir edges are steep or lined, there may be a low-probability entrapment/drowning risk for fauna unless fauna egress is provided (design-dependent).
- Potential attraction of scavengers may occur if waste is not managed properly.

C) Riparian/water quality pathways

- Operational phase pollution risk is generally low but includes potential accidental spills during maintenance. Impacts would remain localised if operational controls are effective.

6.6. Determine the Importance of the Conservation of the Population of the SCC Identified Within the Study Area

Although no SCC populations were confirmed during the site visit, the conservation importance of SCC in the study area is considered high in principle due to:

- the presence of threatened/near-threatened SCC in the broader regional context; and
- the presence of key receptor habitats within the PAOI (particularly cliff habitats and riparian corridors) that could support SCC life-history requirements.

Accordingly, the assessment adopts a precautionary approach, prioritising avoidance and strict impact management in high-value receptor units (cliff faces/edges and riparian corridors), supported by buffers, micro-siting where feasible, and construction-phase verification triggers to ensure that SCC are not adversely affected should they occur or be detected during implementation.

6.7. List of Species, and/or other relevant databases

The conservation status and likelihood-of-occurrence information for SCC considered in this assessment was informed by a review of national and international species and biodiversity databases, including the following:

Core South African biodiversity & conservation databases

- SANBI BGIS (Biodiversity GIS) – national biodiversity layers, screening tool context, guideline access
- SANBI Species Status (Red List of Species portal) – national conservation status and assessments (where available)
- SANBI Red List of Ecosystems – ecosystem threat status (useful where habitat/receptor importance is discussed)

Global conservation status & taxonomy

- IUCN Red List of Threatened Species – global Red List categories and supporting information
- Avibase – bird taxonomy, distribution summaries, regional checklists

Occurrence / observation record platforms (regional likelihood)

- SABAP2 (Southern African Bird Atlas Project 2) – bird distribution and reporting rates/atlas pentads
- iNaturalist – geo-referenced occurrence records (use with quality screening/verification notes)

Bird-specific conservation resources

- BirdLife South Africa – species guidance, conservation context, IBAs, relevant species notes

6.8. Determine the Potential Impact of the Proposed Development on the Habitat of the SCC Located Within the Study Area

No SCC were observed during the site visit, but suitable SCC habitat occurs within the footprint, so habitat impacts are assessed pathway-based.

- Cliffs/escarpments (highest concern): Parts of the infrastructure occur on or near cliff faces/edges. This can directly disturb or locally alter cliff habitat and can also reduce the cliff's suitability for roosting/nesting through noise and repeated activity. Impacts are localised but potentially high consequence because cliff habitat is discrete and difficult to rehabilitate.
- Rivers/streams and riparian zones (moderate–high concern): Watercourses occur within the PAOI. Potential impacts include riparian disturbance, bank erosion, sedimentation and spill/pollution risks during construction, with possible downstream effects if not controlled.
- Grassland/open areas (moderate concern): The main impact is localised disturbance and habitat loss/compaction within the pipeline corridor and nodal footprints, with temporary displacement during construction.

Operational impacts are expected to be lower overall, but reservoir edges require confirmation; if steep/lined, fauna egress measures should be included.

6.9. Include A Review of Relevant Literature on the Population Size of the SCC, the Conservation Interventions as well As Any National or Provincial Species Management Plans for the SCC

Although no SCC were recorded during the site survey, the broader Sterkspruit–Southern Drakensberg region supports several SCC. The conservation significance of the SCC considered in this report is therefore informed by national conservation assessments, published species plans, and peer-reviewed literature.

Cape Vulture / Cape Griffon (*Gyps coprotheres*) – Endangered (EN)

South Africa's regional population of Cape Vulture is assessed as Endangered, reflecting significant population decline over the relevant assessment period (SANBI Red List of South African Species, 2015, <https://speciesstatus.sanbi.org/>). Population persistence is closely linked to survival of adults and breeding success at colonies/roosts, with key threats including poisoning, powerline collisions/electrocution, and other human-related mortality drivers addressed in coordinated conservation planning (DFFE (Draft Multi-Species Biodiversity Management Plan for Vultures in South Africa, 2022). South Africa has gazetted a Multi-species Biodiversity Management Plan (BMP) for Vultures, which sets out priority actions (e.g., reducing poisoning, safer infrastructure, protection of breeding/roost sites, and coordinated multi-stakeholder implementation) (DFFE, 2022). The wider vulture conservation framework is supported by the Vulture Multi-species Action Plan (Vulture MsAP), adopted under CMS Raptors MOU, which provides a roadmap to halt declines across African-Eurasian vultures (Botha et al., 2017). Peer-reviewed South African research also shows that Cape Vultures can utilise human-dominated landscapes (e.g., subsistence farmland), meaning settlement presence does not exclude use of the broader area (Morgan et al., 2015).

Relevance to BWSS: BWSS does not introduce wind turbines and (as confirmed) does not require new overhead powerlines (removing a major mortality pathway). The primary project-relevant risk is therefore disturbance and habitat disruption at cliff faces/edges where infrastructure is proposed near cliffs; strict cliff controls and pre-construction verification triggers are required to remain aligned with BMP priorities (protect breeding/roost habitat and reduce human-related mortality).

Southern Bald Ibis (*Geronticus calvus*) – Vulnerable (VU)

Southern Bald Ibis is assessed regionally and nationally as a species of conservation concern, and SANBI's assessment recommends a long-term Species Action Plan focus and protection of key breeding colonies and feeding areas (SANBI Red List of South African Species, 2015, <https://speciesstatus.sanbi.org/>). BirdLife South Africa has produced a Species Action Plan / planning document for Southern Bald Ibis, which emphasises monitoring, protection of colonies, and habitat management in its grassland range (BirdLife South Africa Southern Bald Ibis *Geronticus calvus* Species Action Plan, 2021). This is relevant to BWSS where pipeline corridors and nodal infrastructure may

intersect grassland foraging areas and where cliffs/ledges may provide potential roosting/nesting features.

Verreaux's Eagle (*Aquila verreauxii*) – (Regionally Vulnerable)

- Population status (literature): National assessment notes threats linked to persecution/retaliation, and the species' ecology is strongly cliff-associated (nesting/roosting) (SANBI Red List of South African Species, 2015, <https://speciesstatus.sanbi.org/>).
- Key threats: Persecution in some farming contexts; and collision risk where wind energy overlaps with the species' distribution (not applicable to BWSS, but relevant as background).
- Conservation interventions: Risk reduction focuses on protecting nesting/roost cliffs and reducing human-related disturbance; wind-energy guidance is relevant only if turbines were proposed (Murgatroyd, M. and Rodrigues, L. 2025, Available at: <https://www.birdlife.org.za/red-list/verreauxs-eagle/>).
- Management plans/guidance: BirdLife South Africa provides a species account and guidance (including wind-energy risk context) (Murgatroyd, M. and Rodrigues, L. 2025, Available at: <https://www.birdlife.org.za/red-list/verreauxs-eagle/>).

Spotted-necked Otter (*Hydriactis maculicollis*) – VU (regional SA assessment)

- Population status (literature): Assessed as Vulnerable (regional South Africa) in SANBI's Red List system.
- Key threats: Sensitive to water quality degradation and contamination; the assessment literature notes contaminant exposure (bioaccumulation) and broader river ecosystem threats (SANBI Red List of South African Species, 2015, <https://speciesstatus.sanbi.org/>).
- Conservation interventions: Protecting riparian habitat integrity, maintaining water quality, and reducing pollution/sedimentation are core interventions implied by threat pathways (SANBI Red List of South African Species, 2015, <https://speciesstatus.sanbi.org/>).
- Management plans/guidance: Primary guidance is via the SANBI assessment and associated ecological notes (habitat requirements and sensitivity to silt/pollution) (SANBI Red List of South African Species, 2015, <https://speciesstatus.sanbi.org/>).
- Relevance to BWSS: Rivers and streams occur within the PAOI; therefore, otter habitat pathways are applicable. The project's key risks are construction-phase sedimentation, spills, and riparian disturbance—managed through riparian buffers, erosion/sediment controls, spill prevention/response, and minimising/controlling any crossings.

Withheld SCC ("Sensitive species 29") – Medium sensitivity trigger

- Population status / plans: Species identity is withheld in the public screening output; species-specific population and management plan review cannot be completed until the identity is released through the appropriate request process.
- Interim conservation approach: Until confirmed, apply a conservative habitat/pathway approach focused on the mapped sensitivity features and receptor units (cliffs, riparian corridors, intact grassland patches), and implement a fauna encounter/stop-work procedure.

6.10. Identify Any Dynamic Ecological Processes Occurring Within the Broader Landscape that Might Be Disrupted by the Development and Result in Negative Impact on the Identified SCC

The BWSS infrastructure is linear and nodal, and impacts on dynamic ecological processes are therefore expected to be localised to the development footprint/PAOI, rather than causing broad

landscape-scale disruption. However, a few key processes require attention where the footprint intersects sensitive receptors:

- Fire regime (grasslands): Construction access and activities can locally increase ignition risk or alter fire management around the corridor, which may affect grassland structure and foraging conditions for grassland-associated SCC.
- Hydrology and sediment dynamics (rivers/streams): Works near watercourses can locally increase sedimentation or affect bank stability and water quality, with limited downstream influence if erosion/spill controls and buffers are effective.
- Connectivity and movement pathways: Increased access and disturbance can locally reduce habitat functionality along cliffs and riparian corridors, but this can be managed through footprint discipline and micro-siting.
- Erosion on steep slopes/cliffs: Localised earthworks on steep terrain can accelerate erosion if stormwater controls and rehabilitation are inadequate.
- Scavenger attraction: Poor waste/carcass management can locally attract vultures/scavengers into risk areas; strict waste control prevents this.

Overall, the project is unlikely to disrupt dynamic ecological processes at a broader landscape scale, provided that cliff and riparian controls, erosion/stormwater management, and waste management are implemented effectively.

6.11. Identify Any Potential Impact of Ecological Connectivity In Relation to the Broader Landscape

The BWSS comprises dispersed nodal infrastructure (dam, abstraction works, WTW and reservoirs) connected by linear pipelines. As such, potential effects on ecological connectivity are expected to be localised and mainly associated with increased disturbance and access along the corridor rather than the creation of a major hard barrier.

Connectivity impacts are expected to be low to moderate and localised if the construction footprint is kept to the defined corridor, riparian buffers are maintained, cliff-face disturbance is tightly controlled, and disturbed areas are rehabilitated promptly. The project is unlikely to create a significant landscape-scale barrier, but it can affect connectivity functionally in cliff and riparian receptors if mitigation is not implemented.

6.12. Determine buffer distances as per the Species Environmental Assessment Guidelines used for the population of each SCC

A minimum 50 m riparian management buffer applies to all rivers/streams/drainage lines within the PAOI for construction controls (no refuelling/storage/laydown; erosion and sediment controls). Cliff faces/edges where infrastructure occurs are treated as High sensitivity receptors managed through strict footprint control, disturbance restrictions, and stop-work/specialist confirmation triggers.

6.13. Discuss the Presence or Likelihood of Additional SCC Including Threatened Species Not Identified by the Screening Tool

No SCC were confirmed during the site survey. However, the Blikana Water Supply Scheme occurs within a broader Sterkspruit / Southern Drakensberg regional context that supports a suite of threatened and near-threatened fauna.

Accordingly, in addition to the SCC identified by the Screening Tool, additional SCC (and SCC groupings) are considered possible in the broader landscape. Please refer to section 6.1.2 for the list.

6.14. Identify Any Alternative Development Footprints Within the Preferred Site Which Would Be Of “Low” Or “Medium” Sensitivity

Screening and site verification indicate that animal species sensitivity within the preferred site is primarily driven by two receptor types:

1. Cliff faces/edges and cliff base zones (cliff-associated SCC pathway), and
2. Watercourses/drainage lines and riparian corridors (riparian SCC pathway).

Accordingly, alternative footprints of lower sensitivity are those that:

- avoid cliff faces/steep rock habitat and move infrastructure onto gentler slopes or already disturbed corridors; and
- avoid watercourse/drainage line crossings where feasible, or minimise and relocate crossings to the narrowest/disturbed points with strict construction controls.

Alternative footprint principles (applied across the scheme)

Where technically feasible, the following principles should be applied to achieve Low–Medium animal species sensitivity footprints within the preferred site:

- Avoid cliff faces/ledges and cliff edges: shift alignments off cliff faces and away from cliff edges; avoid siting permanent infrastructure on cliff faces/ledges.
- Prefer mid-slope or gentle terrain: route along less steep terrain rather than along escarpment edges or down cliff faces.
- Avoid riparian corridors: maintain a riparian management buffer and keep trenches, laydown areas, fuel storage and access routes away from watercourses.
- Minimise watercourse crossings: where crossings are unavoidable, locate them at the narrowest, most stable, and preferably already disturbed points, and avoid steep incised banks.
- Use existing disturbed corridors: preferentially route along existing tracks/road reserves or disturbed verges where this does not create additional erosion or access impacts.
- Consolidate disturbance: co-locate new disturbance within a single controlled corridor rather than creating parallel tracks/alternative access lines.

Alternative Footprints / Micro-siting” (best place)

Engineering feasibility and environmental optimisation (mountainous terrain constraint)

The Blikana Water Supply Scheme is located in a mountainous landscape characterised by steep slopes, rocky escarpments and cliffs, which inherently limits the number of technically feasible locations for reservoirs, abstraction works and pipeline routes. The preferred infrastructure locations and alignments were therefore selected primarily on the basis of engineering viability and constructability (including hydraulic head requirements, gravity/rising main functionality, access feasibility, slope stability and overall constructability in rugged terrain).

From an environmental perspective, the screening overlay indicates that high sensitivity features occur across the broader area, and the specialist assessment confirms that cliff and riparian receptors are present within the PAOI. However, the presence of sensitive receptors does not automatically represent a fatal flaw (“train smash”) for the project where (i) the footprint is minimised, (ii) micro-siting is applied where feasible within engineering tolerances, and (iii) strict mitigation and monitoring controls are implemented—particularly at cliff-face/cliff-edge sections and watercourse interfaces.

Accordingly, where infrastructure cannot be relocated due to engineering constraints, the environmental management approach is to reduce impact intensity and consequence through avoidance of the most sensitive micro-features (where possible), strict footprint discipline, disturbance controls, riparian buffers, erosion and sediment control, and construction-phase verification triggers (including stop-work and specialist confirmation if SCC indicators are detected). This integrated approach ensures the project remains technically deliverable while reducing the likelihood of significant residual impacts on SCC habitat and ecological function.

7. Impact Assessment

The impacts that may result from the construction phase and operation phase of the proposed development were 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 7-1):

Table 7-1: Criteria used in determining significance ratings to potential impacts

ASPECT	IMPACT RATING										
Status of the Impact	A statement of whether the impact is positive (a benefit), negative (a cost), or neutral										
Direct impact	Impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable.										
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.										
Cumulative Impacts	Impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of the past, present, or reasonably foreseeable future activities. Cumulative impacts can occur from the collective impacts of individual minor actions over a period of time and can include both direct and indirect impacts.										
Nature of the Impact	The evaluation of the nature is impact specific. Most negative impacts will remain negative, however, after mitigation, significance should reduce to: <ul style="list-style-type: none"> • Positive • Negative 										
Extent	<p>A description of whether the impact would occur on a scale limited to within the study area (local), limited to within 5 km of the study area (area) on a regional scale. i.e. the Chris Hani District Municipality & Eastern Cape (Region); or would occur on a national or international scale.</p> <table border="1"> <tbody> <tr> <td>Local</td> <td>1</td> </tr> <tr> <td>Area</td> <td>2</td> </tr> <tr> <td>Regional</td> <td>3</td> </tr> <tr> <td>National</td> <td>4</td> </tr> <tr> <td>International</td> <td>5</td> </tr> </tbody> </table>	Local	1	Area	2	Regional	3	National	4	International	5
Local	1										
Area	2										
Regional	3										
National	4										
International	5										
Duration	<p>A prediction of whether the duration of the impact would be immediate and once-off (less than one month), more than once, but short term (less than one year), regular, medium term (1 to 5 years), long term (6 to 15 years), project life/permanent (> 15 years, with the impact ceasing after the operational life of the development or should be considered as permanent).</p> <table border="1"> <tbody> <tr> <td>Immediately</td> <td>1</td> </tr> <tr> <td>Short term</td> <td>2</td> </tr> <tr> <td>Medium term</td> <td>3</td> </tr> <tr> <td>Long term</td> <td>4</td> </tr> <tr> <td>Project life/permanent</td> <td>5</td> </tr> </tbody> </table>	Immediately	1	Short term	2	Medium term	3	Long term	4	Project life/permanent	5
Immediately	1										
Short term	2										
Medium term	3										
Long term	4										
Project life/permanent	5										

ASPECT	IMPACT RATING		
Intensity	<p>This provides an order of magnitude of whether or not the intensity (magnitude/size/frequency) of the impact would be negligible, low, medium, high or very high. This is based on the following aspects:</p> <ul style="list-style-type: none"> • An assessment of the reversibility of the impact (permanent loss of resources, or impact is reversible after project life) • Whether or not the aspect is controversial • An assessment of the • The level of alteration to the natural system, process or systems. 		
	Negligible	The impact does not affect physical, biophysical or socio-economic functions and processes.	1
	Low/potential harmful	The impact has limited impacts on physical, biophysical or socio-economic functions and processes.	2
	Medium/slight harmful	The impact has an effect on physical, biophysical or socio-economic functions and processes, but in such a way that these processes can still continue to function albeit in a modified fashion.	3
	High/harmful	Where the physical, biophysical or socio-economic functions and processes are impacted on in such a way as to cause them to temporarily or permanently cease.	4
	Very high/disastrous	Where the physical, biophysical or socio-economic functions and processes are highly impacted on in such a way as to cause them to permanently cease.	5
Frequency	<p>This provides a description of any repetitive, continuous or time-linked characteristics of the impact: Once-off (occurring any time during construction or operation); intermittent (occurring from time to time, without specific periodicity); periodic (occurring at more or less regular intervals); continuous (without interruption).</p>		
	Once-off	Once	1
	Rare	1/5 to 1/10 years	2
	Frequent	Once a year	3
	Very frequent	Once a month	4
	Continuous	≥Once a day/per shift	5
Probability of occurrence	<p>A description of the chance that consequences of that selected level of severity could occur during the exposure.</p>		
	Highly unlikely	The probability of the impact occurring is highly unlikely due to its design or historic experience.	1
	Improbable	The probability of the impact occurring is low due to its design or historic experience.	2
	Probable	There is a distinct probability of the impact occurring.	3
	Almost certain	It is most likely that the impact will occur	4
	Definite	The impact will occur regardless of any prevention measures.	5
Incidence (frequency + probability)			
Risk rating	<p>The risk rating is calculated based on input from the above assessments. The incidence of occurrence is calculated by adding the extent of the impact to the duration of the impact. The severity of the impact is calculated based on input from the extent of the impact, the duration and the intensity.</p> <p>Risk = Severity (extent + duration + intensity) x Incidence (frequency + probability)</p> <p>Significance: The significance of the risk based in the identified impacts has been expressed qualitatively as follows:</p> <ul style="list-style-type: none"> • Low – the impact is of little importance/insignificant but may/may not require minimal management. 		

ASPECT	IMPACT RATING
	<ul style="list-style-type: none"> • Medium – the impact is importance; management is required to reduce negative impacts to acceptable levels. • High – the impact is of great importance, negative impacts could render development options or the entire project unacceptable if they cannot reduce to acceptable levels and/or if they are not balanced by significant positive impact, management of impacts is essential.

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 was determined as follows (Table 7-2):

Table 7-2: Definition of significance ratings (positive and negative)

Significance	Description
Very high (VH) (150+)	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) (101-149)	An impact of high significance which could influence a decision about whether to proceed with the proposed project, regardless of available mitigation options.
Medium (M) (51-100)	If left unmanaged, an impact of medium significance could influence a decision about whether to proceed with a proposed project.
Low (L) (25-50)	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) (1-24)	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.

7.1. Impact Identification and Description

Impact 1: Disturbance and degradation of cliff habitat (cliff-associated SCC) during construction phase.

Nature of impact: Negative

Direct/Indirect: Direct (physical disturbance at cliff sections) + Indirect (disturbance-driven avoidance)

Discussion:

Although no SCC were observed, suitable cliff habitat exists and some infrastructure is located on/near cliff faces/edges, creating a high-sensitivity receptor interaction for cliff-associated SCC (e.g., Cape Vulture/Cape Griffon and Verreaux's Eagle).

Cumulative impacts:

Cumulative disturbance can arise from increasing access, settlement expansion and grazing pressure in mountainous areas; BWSS adds some disturbance at specific cliff features.

Mitigation (core):

- Micro-site off cliff faces/ledges where feasible; minimise footprint at cliff sections
- Daylight-only works; no lighting toward cliffs

- Strict access/footprint demarcation; avoid new tracks along cliff edges
- Pre-construction cliff scan and stop-work trigger if nesting/roosting indicators recorded
- Waste/carcass control to avoid attracting scavengers

Risk scoring

Criterion	Without mitigation	With mitigation
Extent (1–5)	2	2
Duration (1–5)	4	3
Intensity (1–5)	5	4
Severity = E + D + I	11	9
Frequency (1–5)	4	3
Probability (1–5)	4	3
Incidence = F + P	8	6
Risk = Severity × Incidence	88	54
Significance	Medium (M)	Medium (M)

Interpretation: Mitigation reduces risk meaningfully, but residual risk remains Medium because the receptor is sensitive and some cliff interaction is unavoidable.

Impact 2: Riparian disturbance and water quality degradation (crossings / near-water works)

Nature of impact: Negative

Direct/Indirect: Direct (riparian disturbance, crossings) and Indirect (downstream sediment/pollution propagation)

Discussion:

Rivers/streams occur within the PAOI and the scheme includes crossings/near-water works, creating sedimentation and spill pathways that can affect riparian-associated SCC habitat (including otter pathway relevance).

Cumulative impacts:

Existing erosion pressures from grazing and settlement can compound sediment loading; multiple activities within a catchment can cumulatively increase turbidity and bank instability.

Mitigation:

- Maintain riparian management buffer (min. 50 m where feasible)
- Minimise crossings; select narrow stable points; rehabilitate banks immediately
- Erosion/sediment controls (staged clearing, silt fences, berms, stabilisation)
- Spill prevention and response readiness; no refuelling/storage near watercourses

Risk scoring

Criterion	Without mitigation	With mitigation
Extent	3	2
Duration	3	2
Intensity	4	3
Severity	10	7
Frequency	4	3
Probability	4	3
Incidence	8	6
Risk	80	42
Significance	Medium (M)	Low (L)

Interpretation: With mitigation, the risk can be reduced to Low, but only if controls are actively enforced (ECO inspections, immediate rehab, spill readiness).

Impact 3: Loss/fragmentation of grassland/open habitat (foraging/movement habitat)

Nature of impact: Negative

Direct/Indirect: Direct (habitat clearance/compaction) and Indirect (fragmentation, increased access)

Discussion:

The construction corridor and nodal footprints will disturb grassland/open habitats. Although much of the area is already influenced by grazing/settlement, remaining patches may support foraging and movement for regional grassland SCC.

Cumulative impacts:

Incremental transformation and increased access can cumulatively degrade grassland condition over time if rehabilitation is poor.

Mitigation:

- Strict footprint demarcation; keep corridor as narrow as practicable
- No parallel tracks; progressive rehabilitation; erosion control
- Alien invasive plant control on disturbed verges
- ECO monitoring and corrective action

Risk scoring

Criterion	Without mitigation	With mitigation
Extent	2	2
Duration	3	2
Intensity	3	2
Severity	8	6
Frequency	4	3
Probability	4	3
Incidence	8	6
Risk	64	36
Significance	Medium (M)	Low (L)

Impact 4: Faunal injury/mortality during construction (vehicles, trenches, entrapment)

Nature of impact: Negative

Direct/Indirect: Direct

Discussion:

Construction activities (vehicle movement, open trenches/excavations) can cause injury/mortality to fauna even where SCC are not present.

Cumulative impacts:

If temporary access routes become permanent, roadkill risk may persist and combine with other local developments.

Mitigation:

- Speed limits; restrict driving to demarcated routes
- Daily trench checks; escape ramps; cover open excavations where feasible
- Fauna encounter/rescue procedure under ECO oversight

Risk scoring

Criterion	Without mitigation	With mitigation
Extent	2	2
Duration	2	2
Intensity	3	2
Severity	7	6
Frequency	4	3
Probability	3	2
Incidence	7	5
Risk	49	30
Significance	Low (L)	Low (L)

7.2. No-Go Alternative

Under the No-Go alternative, the Blikana Water Supply Scheme (BWSS) would not proceed and therefore no project-related impacts on SCC habitat, ecological connectivity, riparian integrity, or other dynamic ecological processes would occur. However, the No-Go alternative would also mean that the anticipated social and economic benefits associated with the scheme would not be realised. In particular, the planned improvement in reliable access to potable water for the affected wards in Senqu Local Municipality would not occur, and communities would likely remain dependent on existing water supply arrangements that may be constrained in terms of reliability, coverage, and water quality. The No-Go alternative would also forego potential short-term employment and local procurement opportunities during construction and limited longer-term operational/maintenance employment, as well as broader socio-economic benefits linked to improved water security (e.g., public health outcomes, reduced time spent collecting water, and enabling local economic activity). In addition, the municipality would not realise the infrastructure investment intended to strengthen service delivery resilience in the project area.

7.3. Operational Phase Impacts

Impact 1: Ongoing disturbance at cliff-associated infrastructure (maintenance visits)

Nature: Negative

Type: Direct + Indirect

Discussion: Operational impacts are typically lower than construction, but periodic maintenance and access near cliff features can sustain disturbance and reduce cliff habitat functionality if unmanaged. Mitigation: restrict maintenance access; no lighting toward cliffs; schedule visits to minimise disturbance; apply stop-work trigger if nesting/roosting indicators found.

Risk scoring

Criterion	Without mitigation	With mitigation
Extent	2	2
Duration	5	4
Intensity	3	2
Severity = E+D+I	10	8
Frequency	2	1
Probability	3	2
Incidence = F+P	5	3
Risk = Severity×Incidence	50	24
Significance	Low (L)	Very Low (VL)

Impact 2: Water quality / riparian degradation from operational incidents (low likelihood spills)

Nature: Negative

Type: Indirect

Discussion: Operational phase impacts are generally low but include accidental spills during maintenance and long-term poor management of stormwater/runoff near watercourse-adjacent infrastructure.

Mitigation: spill kits, bunding, maintenance Standard Operating Procedures (SOPs); no storage/refuelling near watercourses; routine inspection of erosion controls; rapid incident response.

Risk scoring

Criterion	Without mitigation	With mitigation
Extent	3	2
Duration	3	2
Intensity	3	2
Severity	9	6
Frequency	2	1
Probability	3	2
Incidence	5	3
Risk	45	18
Significance	Low (L)	Very Low (VL)

Impact 3: Long-term fragmentation / access-mediated disturbance along the corridor

Nature: Negative

Type: Indirect

Discussion: If temporary access becomes permanent or if maintenance tracks remain open, long-term incremental disturbance and erosion can affect grassland function and connectivity.
 Mitigation: decommission temporary tracks; maintain single controlled access; rehabilitate and monitor; alien control.

Risk scoring

Criterion	Without mitigation	With mitigation
Extent	2	2
Duration	5	4
Intensity	2	1
Severity	9	7
Frequency	2	1
Probability	3	2
Incidence	5	3
Risk	45	21
Significance	Low (L)	Very Low (VL)

Impact 4: Faunal injury/mortality from operational traffic (maintenance vehicles)

Nature: Negative

Type: Direct

Discussion: Operational traffic is low compared to construction but may still cause occasional roadkill if unmanaged.

Mitigation: speed limits; restrict driving to daylight and defined routes; awareness induction.

Risk scoring

Criterion	Without mitigation	With mitigation
Extent	2	2
Duration	5	4
Intensity	2	1
Severity	9	7
Frequency	2	1
Probability	2	1
Incidence	4	2
Risk	36	14
Significance	Low (L)	Very Low (VL)

The Impact Summary Register indicates that the dominant residual animal species risk for the BWSS is associated with cliff-face/cliff-edge infrastructure during the construction phase, which remains Medium significance even with mitigation due to the high sensitivity of cliff receptors and the fact that some cliff interaction is unavoidable. All other assessed impacts are expected to reduce to Low (construction) or Very Low (operation) with the implementation of standard EMPr controls, particularly riparian buffers and water-quality protection measures, strict footprint discipline and rehabilitation, and effective access/traffic management. Overall, the project is considered acceptable from an animal species perspective provided that the cliff-specific controls (micro-siting where feasible, disturbance restrictions, and stop-work/specialist confirmation triggers) are fully implemented and enforced.

8. Conclusion

No SCC were recorded during the site survey; however, the BWSS footprint/PAOI contains habitat features that could support SCC, particularly cliffs/escarpments and riparian corridors. Sensitivity is not uniform across the project area and is driven by discrete receptors. Where infrastructure is proposed on or immediately adjacent to cliff faces/edges, sensitivity is elevated and requires strict disturbance management and construction-phase verification triggers. Riparian corridors and watercourses within the PAOI require buffer implementation and strict erosion/sediment and spill controls, particularly where crossings occur.

Overall, the BWSS is considered acceptable from an animal species perspective provided that micro-siting is applied where feasible to reduce interaction with cliff and riparian receptors; cliff-face/cliff-edge and riparian controls are implemented through the EMP and ECO oversight; and stop-work and specialist confirmation triggers are applied if SCC indicators are detected during pre-construction walkdown or construction activities.

8.1. Specialist Opinion

In my specialist opinion, the proposed Blikana Dam Bulk Water Supply Scheme (BWSS) is acceptable from an animal species perspective, provided that the mitigation measures, avoidance principles, micro-siting requirements and monitoring actions set out in this report are fully implemented during the construction and operational phases.

The assessment identified that the broader project area contains fauna-sensitive habitat receptors, particularly rocky escarpments/cliffs and riparian corridors, which may provide habitat or movement pathways for Species of Conservation Concern (SCC) and other fauna of conservation relevance. However, no SCC were directly observed during the field assessment, and the project footprints are generally located within a disturbed rural landscape comprising grazing areas, settlements, rocky terrain and drainage-linked habitat features. The main animal species risks are therefore associated not with confirmed SCC populations within the footprint, but with the disturbance, fragmentation and indirect degradation of habitat features that may support sensitive fauna.

From an animal species perspective, the proposed development is not considered fatally flawed, and no impact was identified that would render the project fundamentally unacceptable, provided that sensitive receptors are appropriately avoided or minimised where feasible. Particular care should be taken at cliff-associated habitats, riparian/drainage features, and other areas of elevated receptor sensitivity identified in the assessment. Construction activities should be planned and managed so as to minimise unnecessary disturbance, habitat degradation, erosion, sedimentation, noise disturbance and faunal mortality.

With respect to alternatives, the preferred WTW site is supported over Alternative 1 from an animal species perspective. Although both sites are of relatively low fauna sensitivity compared to the more important cliff and riparian receptors elsewhere in the BWSS project area, the preferred site is located within a previously disturbed grazing/cultivation area, whereas Alternative 1 is associated with dongas and drainage line features that increase local habitat complexity and indirect disturbance pathways. The preferred WTW site is therefore considered the lower-risk option from an animal species perspective.

The project is acceptable with conditions, provided that the final design and construction implementation incorporate: (1) strict cliff-face/cliff-edge management (micro-siting where feasible, controlled access, no lighting toward cliffs, and stop-work/specialist confirmation triggers); (2) riparian buffers, erosion/sediment controls and spill prevention/response measures at all watercourse interfaces and crossings; (3) footprint discipline and progressive rehabilitation along the linear corridor; and (4) adaptive management should sensitive species (including withheld Sensitive species 29) be confirmed through SANBI disclosure or detected during implementation. If the final engineering layout changes

materially (alignment shifts, widened corridors, additional access roads, introduction of blasting, or new overhead powerlines), this specialist opinion must be reviewed and updated.

9. References

- ACOCKS, J.P.H. 1953, 1988. Veld types of South Africa. Memoir of the Botanical Survey of South Africa 57: 1-146.
- Alexander G and Marais J. 2007. A Guide to The Reptiles of Southern Africa.
- Barnes K.N. 2000. The Eskom Red Data book of birds of South Africa, Lesotho and Swaziland.
- Barnes, K.N. (2000). The Eskom Red Data Book of South Africa, Lesotho and Swaziland. Birdlife South Africa. Randburg.
- BirdLife International (2012). Endemic Bird Area factsheet. Downloaded from <http://www.birdlife.org>.
- Branch W.R. (ed.) 1988. South African Red Data book – reptiles and amphibians. SA National Scientific programmes Report No. 151. CSIR, Pretoria.
- Brownlie, S. 2005. Guideline for Involving Biodiversity Specialists in EIA Processes: Edition 1. CSIR Report No ENV-S-C 2005 053 C. Provincial Government of the Western Cape, Department of Environmental Affairs & Development Planning, Cape Town. 63 pp.
- Department of Environmental Affairs and Tourism, 2007. National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004): Publication of lists of Critically Endangered, Endangered, Vulnerable and Protected Species. Government Gazette, Republic of South Africa.
- Driver A., Cowling R.M., & Maze K. 2003. Planning for living landscapes: perspectives and lessons from South Africa. Center for Applied Biodiversity Science at Conservation International, Washington DC; Botanical Society of South Africa, Cape Town.
- Du Preez L. & Carruthers V. 2009. A Complete Guide to the Frogs of Southern Africa. Struik Nature, Cape Town.
- Estes, R. (1992). "The behaviour guide to African mammals: including hoofed mammals, carnivores, primates". University of California Press.
- FOOD AND AGRICULTURAL ORGANIZATION'S (FAO) (2006) Guidelines of Soil Description. 4th Ed.
- Friedmann Y. & Daly B. (eds) 2004. Red Data Book of the mammals of South Africa: a conservation assessment. CBSG Southern Africa, Conservation Breeding Specialist Group (SSC/IUCN), Endangered Wildlife Trust, South Africa.
- Hockey PAR., Dean WRJ & Ryan PG. 2006. Roberts Birds of Southern Africa. VIIth Edition.
- IUCN Red List www.iucnredlist.org.
- IUCN. 2012. Red List of Threatened Species. IUCN Species Survival Commission, Cambridge Available: <http://www.iucnredlist.org/>.
- Jacobsen, N. (2005). Remarkable reptiles of South Africa. Briza, South Africa.
- Miller J.R. 2005. Biodiversity conservation and the extinction of experience. Trends in Ecology and Evolution. 20(8): 430-434.
- Minter L.R., Burger M., Harrison J.A., Braack H.H., Bishop P.J. and Kloepfer D. 2004. Atlas and Red Data book of the frogs of South Africa, Lesotho and Swaziland. Smithsonian Institution, Washington D.C.
- Mucina L & Rutherford M.C. (eds.) 2006. Vegetation Map of South Africa, Lesotho and Swaziland: Shapefiles of basic mapping units.

Mucina, L. and M. Rutherford. Eds. 2012 update. Vegetation map of South Africa, Lesotho, and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria.

NEM:BA. 2014. National Environmental Management Act: Biodiversity Act (No. 10 of 2004) – Alien and Invasive Species lists, 2014. Government Gazette, No. 37320, 12 February 2014.

Picker M, Griffiths c and Weaving A. 2004. Field Guide to Insects of Southern Africa. Struik Publishers, Cape Town.

ROBERTS, D. L., BOTHA, G. A., MAUD, R. R., PETHER, J., AND JOHNSON, M. R. 2006. Coastal cenozoic deposits. The geology of South Africa. Johannesburg/Pretoria: Geological Society of South Africa/Council for Geoscience, 605-628.

SCHOEMAN, J.L., VAN DER WALT, M., MONNIK, K.A., THACKRAH, A., MALHERBE, J. AND LE ROUX, R.E., 2000. The development and application of a land capability classification system for South Africa. ARC-ISCW Report No GW/A/2000/57, ARC-Institute for Soil, Climate and Water, Pretoria

Sinclair, I., Hockey, P., Tarboton W., and Ryan, P. (2011). Sasol birds of Southern Africa (4th ed), Cape Town: Struik Nature.

Smithers RHN. 1983. Land Mammals of Southern Africa. A field Guide

SOIL CLASSIFICATION WORKING GROUP. 2018. Soil Classification: A Natural and Anthropogenic System for South Africa, ARC-Institute for Soil, Climate and Water, Pretoria

Stuart, C. and Stuart, M. (2015). Stuart's field guide to Mammals of Southern Africa, including Angola, Zambia and Malawi, Cape Town: Struik Nature.

Swaziland. BirdLife South Africa, Johannesburg.

The IUCN species survival Commission: 2007 IUCN Red list of threatened species.