



Scientific Terrestrial Services

Applying science to the real world

29 Arterial Road West, Oriel, Bedfordview, 2007

Tel 011 616 7893

Fax 011 615 4106 / 086 724 3132

www.sasenviromental.co.za

admin@sasenvgroup.co.za

Name: Jandre Potgieter
Christien Steyn (Pr. Sci. Nat)
Chris Hooton
Date: Wednesday, 27 September 2023
Ref: STS 23-2043

Zutari (Pty) Ltd

Riverwalk Office Park
41 Matroosberg Road
Newlands
Pretoria
0081

Phone: 012 427 2000

Email: zinzi.xakayi@zutari.com

Attention: Ms. Zinzi Portia Xakayi

RE: TERRESTRIAL COMPLIANCE STATEMENT FOR THE PROPOSED SEKURUWE WATER TREATMENT WORKS (WTW) AND ASSOCIATED ACCESS ROAD INFRASTRUCTURE, LIMPOPO PROVINCE.

1 INTRODUCTION AND BACKGROUND SETTING

Scientific Terrestrial Services (Pty) Ltd (STS) was appointed by Zutari (Pty) Ltd (Zutari) to prepare a terrestrial compliance statement (where relevant) for the proposed Sekuruwe water treatment works (WTW) and associated infrastructure, within the Limpopo Province. The proposed WTW and associated infrastructure will henceforth collectively be referred to as the “**focus area**”. For a visual representation of the location of the focus area, please refer to Figure 1 below and Figure A1 in Appendix A.

The focus area is approx. 27 kilometres (km) northwest of Mokopane and is situated to the east of the N11. The access road is approx. 2.4 km in length (and 5 metre (m) wide). The extent of the proposed WTW is approx. 4 hectares (ha).

The planning for water and wastewater services in Mogalakwena culminated in the Mogalakwena Water Master Plan (MWMP). As part of the MWMP, two new WTWs are proposed, namely a works serving the Mokopane town with an ultimate capacity of 28MI/d and another servicing the areas north of Mokopane located near Sekuruwe township (i.e., the focus area) with an ultimate design capacity of 21MI/d.

The technical features of the scheme proposed in the MWMP (as provided by the proponent) include the following:

- A raw water pipe from the farm Pruissen (where it connects to the bulk water pipeline from Flag Boshielo Dam) to a new WTW. This works will supply potable water to Mokopane Central Business District (CBD) and town areas;
- The raw water pipe will continue from the WTW at Mokopane, northwards to the rural town area of Sekuruwe where a second WTW will be constructed (i.e., the focus area). This WTW will be able to provide potable water to mining clients and residents for various rural villages; and
- Mining water users will also be able to draw water from the raw water line at various points towards Sekuruwe. This will be handled by means of offtake agreements.

2 PURPOSE OF THIS REPORT

This report aims to 1) verify or dispute the outcome of the screening tool¹ for the animal species theme, plant species theme, and terrestrial biodiversity theme, and 2) where the verification of “low”, “medium”, “high” and “very high” sensitivities are confirmed and/or disputed, a compliance statement may be provided, or a biodiversity assessment recommended.

3 LEGISLATIVE REQUIREMENTS

The legislation considered during this investigation included the following:

- The Constitution of the Republic of South Africa, 1996;
- The National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA);
- The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA);
 - Government Notice (GN) number 2747: The Revised National List of Ecosystems that are Threatened and in need of Protection, published in Gazette No. 47526, dated 18 November 2022, as it relates to the NEMBA; and
 - GN number 30568: Threatened or Protected Species (TOPS) list dated 14 December 2007, as it relates to the NEMBA.
- Government Gazette 45421 dated 10 May 2019 as it relates to the DFFE national environmental screening report required with an application for environmental authorisation (EA) as identified in regulation 16(1)(v) of EIA Regulations:
 - For the Terrestrial Biodiversity Theme: GN 320 Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity as published in Government Gazette 43110 dated 20 March 2020; and
 - For Animal and Plant Species Themes: GN 1150 Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Plant and Animal Species as published in Government Gazette 43855 dated 30 October 2020, including relevant amendments (as amended in GN 3717 of 2023).

¹ This compliance statement will follow the requirements as stated in the procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of Sections 24(5)(A) and (H) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). The outcome of the compliance statement is presented in the form of a report that:

- **Confirms or disputes** the current use of the land and the environmental sensitivity as identified by the screening tool, such as new developments or infrastructure, the change in vegetation cover or status.
- Contains a motivation and evidence (e.g., photographs) of either the verified or different use of the land and environmental sensitivity; and
- Does not include results of a full terrestrial biodiversity assessment. Sensitivities provided in this report only confirm or dispute the screening tool outcomes. If a “Very High” sensitivity is confirmed, the requirements must be followed as outlined in Sections 24(5)(A) and (H) and 44 of the NEMA.

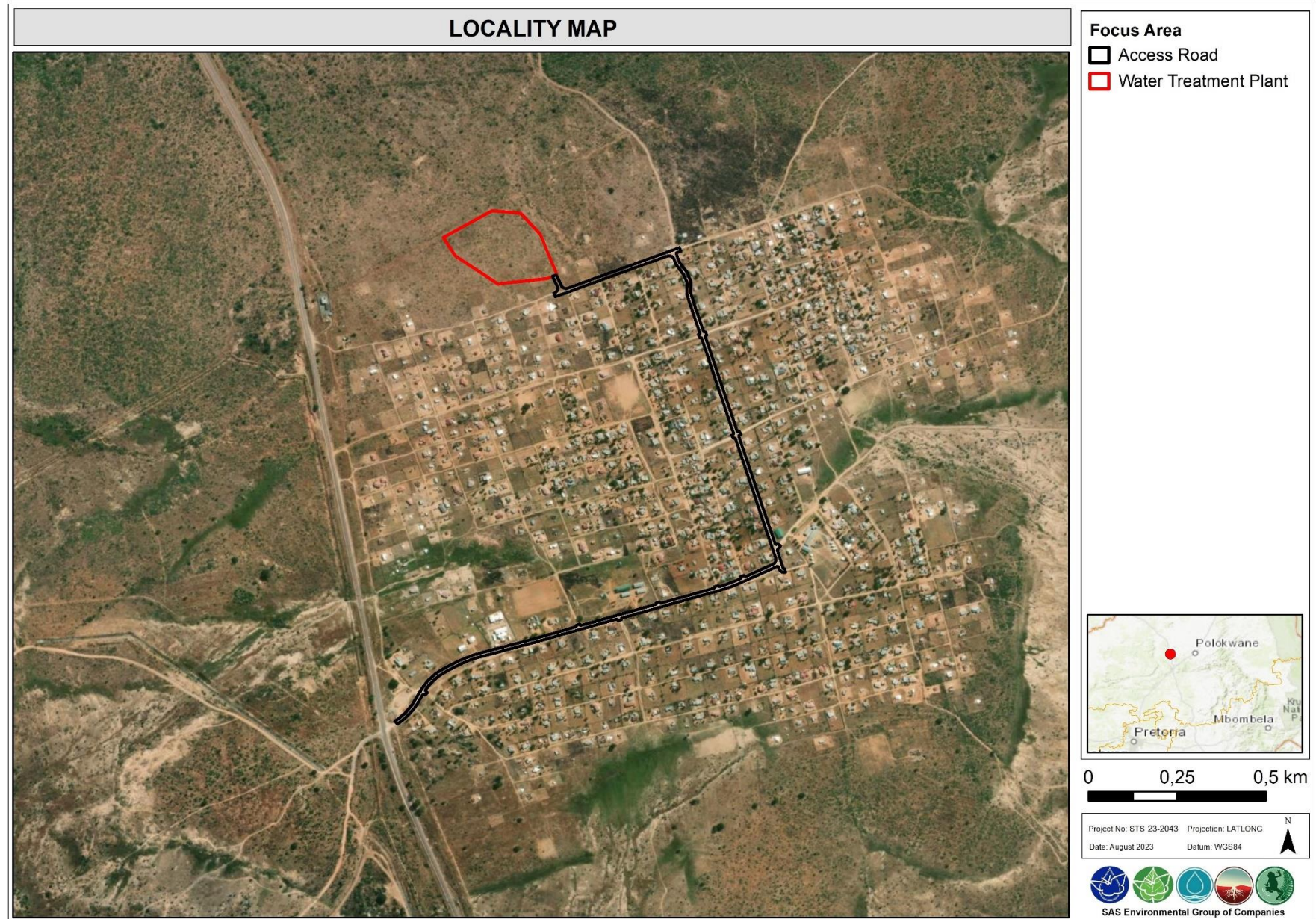


Figure 1: The location of the focus area depicted on satellite imagery in relation to the surrounding areas.

4 METHODOLOGY

The sections below outline the approach taken in terms of data collection for the focus area.

4.1 Desktop Assessment

The desktop analysis was undertaken utilising satellite imagery (Google Earth Pro), historical aerial photography (retrieved from the Chief Directorate: National Geo-spatial Information²), and all available baseline environmental geospatial data obtained from the South African National Biodiversity Institute's (SANBI) Biodiversity Geographical Information System (BGIS) and the DFFE's Environmental GIS (E-GIS) webpage.

4.2 Field Survey

A field investigation to ground truth the desktop findings was undertaken on the 29th of August 2023. The focus area was considered utilising digital satellite imagery prior to and after the field investigation. Prior to the site visit, all species that were triggered by the screening tool (where applicable) for the plant and animal themes, were used to guide fieldwork preparation. Where it was deemed likely for a species to be present on site (or within the vicinity of the focus area), signs of the species and suitable habitat availability were focused on during the field investigation.

5 INVESTIGATION FINDINGS

This section provides the key findings of the desktop research and the field survey. Full results of the desktop assessment are provided in **Appendix B**, with the relevant maps presented in **Appendix A**.

5.1 Assumptions and Limitation

The following assumptions and limitations are applicable to this compliance statement:

- It is assumed that all third-party information used (e.g., GIS data and satellite imagery) is correct and includes the most up-to-date versions available at the time of generating this report; and
- The optimal time to survey floral communities within the Savanna Biome, as suggested by the Species Environmental Assessment Guidelines (2022), is between October and April (peaking in December and March). Furthermore, due to the nature and habits of many faunal taxa and the surrounding anthropogenic activities, it is unlikely that all species or classes would have been observed during a field assessment of limited duration. A more comprehensive assessment would require that assessments take place in all seasons of the year to account for the cyclic nature of faunal assemblages. However, considering a comprehensive desktop research exercise of the area, together with knowledge and experience working in the area, undertaking a once-off field assessment during late winter was deemed adequate for the purposes of a site verification for both fauna and flora.

5.2 Outcomes of the Application of the Screening Tool

On 20 March 2020, the Minister gazetted a set of protocols for the assessment and minimum report content requirements of environmental impacts for various environmental themes. The assessment requirements of these protocols are associated with a level of environmental sensitivity determined by the screening tool. For terrestrial biodiversity, the requirements are for landscapes and/or sites which support various levels of threatened or unique biodiversity. The relevant faunal and floral biodiversity data is stated in the screening tool and has been provided by the SANBI. As part of initiating the EIA process, the screening tool was applied to the focus area (Table 1). According to the screening tool, the focus area occurs in an area of **low** and **medium** sensitivity for the animal species theme, in a **low** and **medium** sensitivity for the plant species theme, and for terrestrial biodiversity theme the screening tool identified the area as a **low** sensitivity area.

² <http://www.cdnqiportal.co.za/cdnqiportal/>

Table 1: The table below includes the outcome of the screening tool for the focus area as it pertains to the Terrestrial Biodiversity, Plant, and Animal themes. The screening tool is intended to allow for pre-screening of sensitivities in the landscape to be assessed within the EA process. This assists with implementing the mitigation hierarchy by allowing developers to adjust their proposed development footprint to avoid sensitive areas.

Animal Species Theme

For the animal species theme, the focus area is considered to have a **medium sensitivity** due to potential suitable habitat for the following trigger species:

- Mammal: *Dasymys robertsii* (Robert's Shaggy Rat, Data Deficient (DD)).

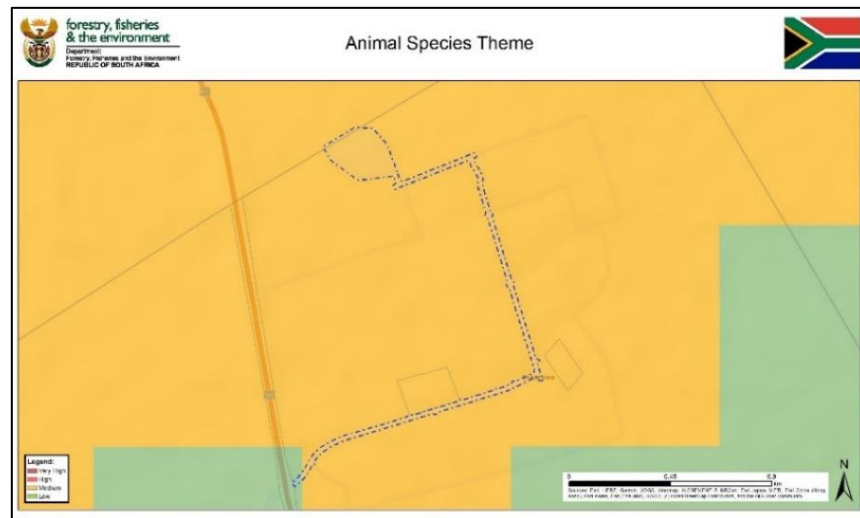


Figure 2: Animal species theme outcome for the focus area.

Plant Species Theme

For the Plant Species theme, the screening tool identified section of the focus area as a **medium sensitivity** area, whereas most of the focus area is within a **low sensitivity** area. The medium sensitivity of the focus area is due to the potential presence of habitat for the following trigger species:

- Sensitive species 1252 (vulnerable (VU)).

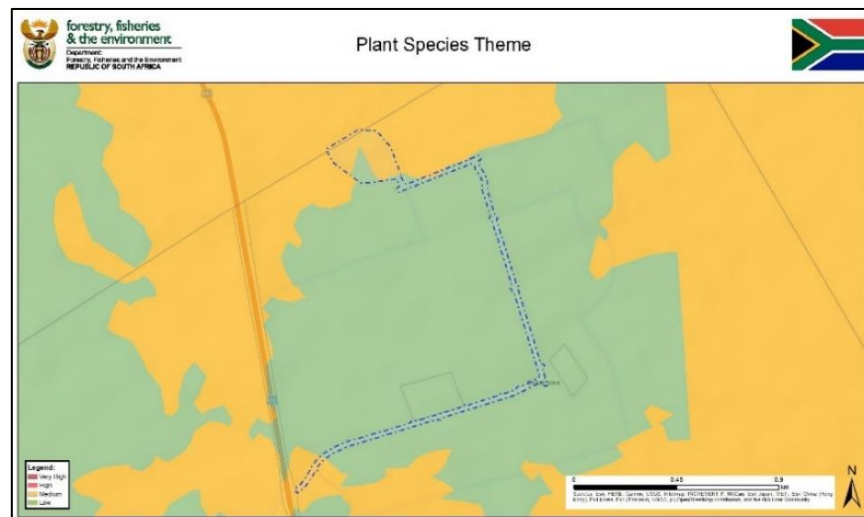
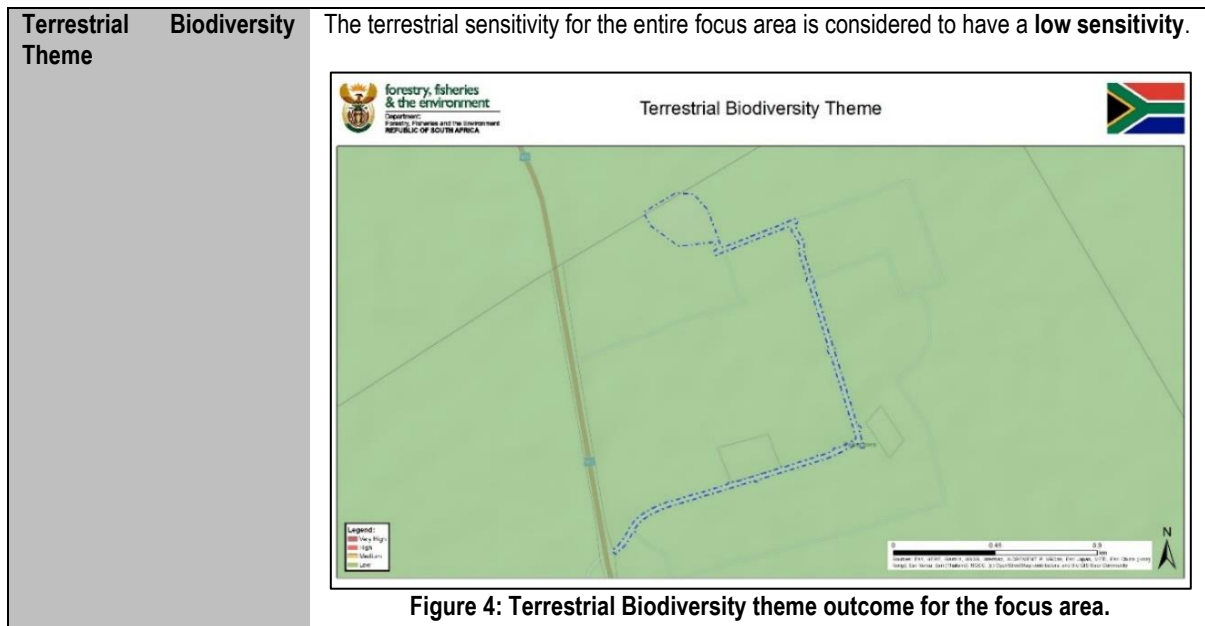


Figure 3: Plant species theme outcome for the focus area.



5.3 Desktop Research Results

- The focus area is in the **Central Bushveld Bioregion**, which is situated within the **Savanna Biome** (more details provided in Appendix B: Table B1). The National Vegetation Map project (VegMAP) indicated the associated vegetation types to consist of the **Makhado Sweet Bushveld (SVcb 20)** and the **Polokwane Plateau Bushveld (SVcb 23)** (Appendix A: Figure A 2);
- According to the Red List of Ecosystems (RLE) dataset (2022), the focus area is located only within the remaining extent of the Polokwane Plateau Bushveld ecosystem (which is a least concern (LC) ecosystem) (Appendix A: Figure A 3);
- The focus area is not located directly within any protected or conservation areas; however, the **Witvinger Nature Reserve** is approximately 9 km southeast of the focus area (South African Protected Areas Database (SAPAD) v 2023-Q1) (Appendix A: Figure A 4); and
- The focus area is not within important conservation areas from a bioregional perspective, i.e., the 2018 Limpopo Province Map of Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) indicate that the focus area is within areas classified as **other natural areas (ONA)** and **no natural remaining (NNR)** (Appendix A: Figure A 5). This is in alignment with the 2016 Waterberg District Bioregional Plan.

5.4 Field Survey Results

The proposed access road is entirely within a transformed area (i.e., the Sekuruwe township) and has been since at least 2004 (earliest available Google Earth satellite imagery). The vegetation within the proposed access road was largely absent (i.e., transformed habitat), apart from alien vegetation such as *Jacaranda mimosifolia* and *Tagetes minuta*. Figure 5 provides a depiction of the proposed access road habitat along with representative photographs.



Figure 5: Site overview of the proposed access road (yellow outline) with reference GPS coordinates. Specialist's tracks indicated by the blue line.

The proposed WTW, however, is in degraded bushveld vegetation where overgrazing, frequent fires, rubble dumping, etc., have lowered the sensitivity of the habitat for both floral and faunal communities. Refer to Figure 6.



Figure 6: Site overview of the proposed access road (yellow outline) and WTW (red outline) with reference GPS coordinates. Specialist's tracks indicated by the blue line.

The vegetation within the proposed WTW footprint has lost much of its integrity due to anthropogenic-related influences (as afore-mentioned). Despite recent fires, it was still evident that the grass sward was in a poor condition as seen with numerous patches of bare ground – an inevitable outcome of overgrazing. The herbaceous layer was absent at the time, but this was expected given the site verification taking place in winter; however, herbaceous species often recover slower (if at all) than grass species where overgrazing takes place, and thus it is highly likely that the herbaceous layer will remain sparse and species poor even during the rainy season. The woody component largely comprised of smaller/lower individuals with only a few mature woody species. Representative photographs are provided in Figure 7.

The habitat associated with the proposed WTW may be under pressure from nearby anthropogenic activities, overgrazing, and altered fire regimes, but without any vegetation clearance within the preceding 10 years, the degraded bushveld meets the NEMA definition of **indigenous vegetation** (refer to some example species recorded within the focus area in Figure 7). The proposed access road, however, does not qualify as indigenous vegetation.



Figure 7: Some of the sparsely occurring woody species within the proposed WTW, comprising (from left to right): *Dombeya rotundifolia*, *Lopholaena coriifolia*, *Ormocarpum trichocarpum*, and *Vitex rehmannii*.

From a faunal perspective, common faunal species adapted to co-exist within environments of increased anthropogenic impacts were observed and can be expected to be found within the focus area. Common avifaunal species such as *Plocepasser mahali* (White-browed Sparrow-Weaver) and *Cinnyris mariquensis* (Marico Sunbird) were observed feeding on *Aloe* flowers, while other species such as *Crinifer concolor* (Grey Go-away-bird), *Urocolius indicus* (Red-faced Mousebird), *Dicrurus adsimilis* (Fork-tailed Drongo) etc. were observed perching on trees within the focus area. The presence of mammals was mostly restricted to domestic species like dogs, cats, donkeys, and cattle, but some common small mammal species like rodents and mongoose can be expected within the focus area. The abundance of rocks and rubble within the focus area created shelter for several common reptile species like the observed *Trachylepis varia* (Variable Skink) and *Myriopholis longicauda* (Long-tailed Thread Snake). The dominant insect orders observed were Lepidoptera, Coleoptera and Orthoptera. Arachnid and other invertebrate diversity and abundance were limited which can be attributed to the lack of vegetation and degraded nature of the focus area.



Figure 8 - Left: *Myriopholis longicauda* (Long-tailed Thread Snake); Centre Left: *Trachylepis varia* (Variable Skink); Centre Right: *Eurocephalus anguitimens* (Southern White-crowned Shrike); Right: *Stephenia caldarena* (Black Tip Acraea).

The focus area itself, has been subjected to anthropogenic influences, and thus has little ecological value for fauna or flora. As such, the screening tool outcomes of medium sensitivities for the related biodiversity themes (animals, and plants) are disputed, while the low sensitivity of the terrestrial biodiversity theme is verified:

- No faunal species triggered by the screening tool were encountered during the site visit or are expected to be found within the focus area. *Dasymys robertsii* (Robert's Shaggy Rat, DD), triggered by the screening tool, prefers swamps and wet areas along rivers and streams which is absent within and around the focus area and therefore this species is not expected to be found within or impacted upon through this development. Based on the lack of suitable habitat

- conditions within the focus area, the medium sensitivity as assigned to the Animal Species Theme is disputed for the focus area and a low sensitivity instead verified;
- The screening tool triggered a medium sensitivity for sections of the proposed WTW and a small section of the proposed access road. The triggered VU sensitive species was not encountered on site and its preferred habitat, i.e., “wooded and relatively mesic places, such as the moister bushveld areas, coastal bush and wooded mountain kloofs”, is not present in the focus area. No other red data listed floral species are anticipated to establish successfully within the focus area and an overall low sensitivity for the Plant Species Theme is verified for the entire focus area; and
 - The screening tool indicated that the focus area is of low sensitivity from a terrestrial biodiversity point of view which was verified during the site visit.

6 PROPOSED IMPACT MANAGEMENT ACTIONS

Given the overall low sensitivity verified for the focus area from a plant species, animal species, and terrestrial biodiversity theme perspective, together with the low likelihood of triggered species being present in the focus area, the direct impacts and associated edge effects arising from proposed activities for the Sekuruwe WTW and associated access road are anticipated to be low. Despite this, general mitigation measures that are to be implemented during construction and maintenance and operational phases. The below is a brief overview of the anticipated impacts, whereas Table 2 provides the impact assessment outcome for the proposed project (along with proposed mitigation measures.

- **Impacts:**
 - Habitat loss (fauna and flora) through clearance or removal of degraded vegetation for construction activities. This will result in reduced floral and faunal species richness and density within the proposed WTW. No habitat loss will occur within the proposed access road;
 - Habitat degradation beyond the footprint areas due to poorly managed edge effects, including 1) introduction of alien and invasive plant (AIP) species with construction vehicles, 2) ineffective rehabilitation of compacted areas, bare soils, or eroded areas, 3) potential inadequate design of stormwater management and erosion control, resulting in increased risk of erosion and additional degradation of faunal and floral habitat beyond the footprint area, and 4) potential fragmentation of natural habitat by transport vehicles not using designated roads;
 - Unlawful destruction/removal of protected floral species within the footprint areas due to failure to comply with national legislation regarding permit applications for the removal, destruction, and/or relocation of trees protected under the National Forest Act, 1998 (Act No. 84 of 1998) (NFA). Refer to recordings of the protected *Sclerocarya birrea* subsp. *caffra* (green dots) below:

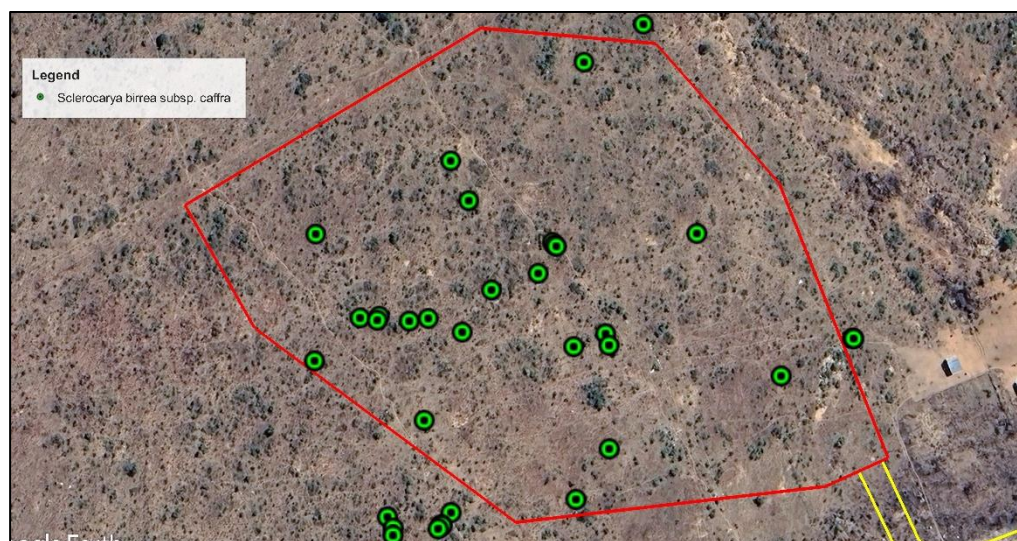


Table 2: Impact assessment overview for the proposed project.

Impact	Pre-mitigation:						Recommended mitigation	Post-mitigation:					
	Duration	Extent	Intensity	Consequence	Probability	Significance		Duration	Extent	Intensity	Consequence	Probability	Significance
Loss of Floral Habitat and Floral Diversity during construction (i.e., removal of vegetation and surface grading across the footprint areas)	Medium-term	Local	Low - negative	Slightly detrimental	Certain	Moderate - negative	**Given that 1) an ephemeral drainage line (EDL) is in close proximity to the proposed WTW (SAS 23-1135), and 2) the proposed WTW is within an area connected to a larger expanse of natural habitat, all footprint areas should remain as small as possible, and the boundaries of the footprint areas must be clearly defined so to ensure that all activities remain within defined footprint areas. Moreover, it must be ensured that, as far as possible, all proposed infrastructure, including temporary infrastructure, is placed outside of natural habitat	Medium-term	Site-specific	Low - negative	Slightly detrimental	Certain	Low - negative
Loss of Floral SCC during construction (i.e., removal of vegetation and surface grading across the footprint areas)	Medium-term	Local	Low - negative	Slightly detrimental	Unlikely	Very low	**No threatened (red data listed) floral species will be impacted by the proposed development. The findings of the site inspection verify the screening tool outcome of a low sensitivity for the Plant Species Theme within the focus area and disputes the sections of medium sensitivity as identified by the screening tool.	Short-term	Site-specific	Low - negative	Negligible	Very unlikely	Very low
Loss of protected floral species (unlawful destruction/removal of protected floral species within the footprint areas)	Medium-term	Local		Moderately detrimental	Certain	Moderate - negative	**Prior to site clearing, for all NFA-protected tree species within the footprint area (i.e., <i>Sclerocarya birrea</i> subsp. <i>caffra</i>), permit applications must be applied for their removal. Permits should be obtained from DFFE.	Medium-term	Site-specific	Low - negative	Slightly detrimental	Certain	Low - negative

Impact	Pre-mitigation:						Recommended mitigation	Post-mitigation:					
	Duration	Extent	Intensity	Consequence	Probability	Significance		Duration	Extent	Intensity	Consequence	Probability	Significance
Degradation of surrounding floral and faunal communities during operational and maintenance phase (i.e., poorly managed edge effects.	Long-term	Local	Moderate - negative	Moderately detrimental	Very likely	Moderate - negative	**As part of rehabilitation activities following the construction of the WTW, ensure that a vegetation layer is reinstated and maintained around the proposed WTW to promote soil health and vegetation establishment, to reduced habitat fragmentation, and to provide resources for fauna. In this regard, the use of indigenous plants from the reference vegetation type is recommended for best biodiversity outcomes (e.g., planting trees such as <i>Dombeya rotundifolia</i>, <i>Sclerocarya birrea</i> susbp. <i>caffra</i>, <i>Searsia leptodictya</i>, <i>Terminalia sericea</i>, and <i>Vitex rehmannii</i>). **No dumping of litter, rubble or cleared vegetation on site should be allowed. Infrastructure and rubble removed as a result of the construction activities should be disposed of at an appropriate registered dump site away from the development footprint. **Stormwater runoff should be adequately managed, notably how and where it is discharged into the receiving environment. **Control invasive plant species throughout the life of the project. Specific mention in this regard is made of listed invasive species as per the NEMBA Alien species lists, 2020, in line with the NEMBA Alien and Invasive Species Regulations (2020). All cleared plant material must be disposed of at a licensed waste facility which complies with the legal standards, or a garden refuse site.	Long-term	Local	Moderate - negative	Moderately detrimental	Fairly likely	Low - negative

Impact	Pre-mitigation:						Recommended mitigation	Post-mitigation:					
	Duration	Extent	Intensity	Consequence	Probability	Significance		Duration	Extent	Intensity	Consequence	Probability	Significance
Loss of Faunal Habitat and Diversity during construction (i.e., removal of vegetation and surface grading across the footprint areas, fauna being displaced due to construction activities etc.)	Medium-term	Local	Moderate - negative	Moderately detrimental	Certain	Moderate - negative	**Given that 1) an ephemeral drainage line (EDL) is in close proximity to the proposed WTW (SAS 23-1135), and 2) the proposed WTW is within an area connected to a larger expanse of natural habitat, all footprint areas should remain as small as possible, and the boundaries of the footprint areas must be clearly defined so to ensure that all activities remain within defined footprint areas. Moreover, it must be ensured that, as far as possible, all proposed infrastructure, including temporary infrastructure, is placed outside of natural habitat.	Medium-term	Site-specific	Moderate - negative	Slightly detrimental	Very likely	Low - negative
Loss of Faunal SCC during construction (i.e., removal of vegetation and surface grading across the footprint areas)	Medium-term	Local	Low - negative	Slightly detrimental	Unlikely	Very low	**No SCC is anticipated to be found within the focus area. The findings of the site inspection dispute the screening tool outcome of a medium sensitivity for the Animal Species Theme and verifies a low sensitivity instead.	Medium-term	Site-specific	Low - negative	Slightly detrimental	Very unlikely	Very low

7 CONCLUDING REMARKS

No significant biodiversity features are associated with the focus area. The probability of threatened or rare floral and / or faunal species occurring or establishing viable populations on site is deemed low. This can be attributed to the already transformed nature of the proposed access road and the degraded condition of the proposed WTW. Proximity to several anthropogenic influences (frequent fire, rubble and waste dumping, overgrazing, settlements encroaching into the site, etc.) further reduce habitat integrity and suitability for the establishment of threatened or rare fauna and flora.

Given the above, the site assessment has verified low sensitivities for the animal species theme, plant species theme, and terrestrial biodiversity themes. Compliance statements for each of these themes are provided below:

- **Animal Species Compliance Statement:** The findings of the site inspection dispute the screening tool outcome of a **medium sensitivity** for the Animal Species Theme and verifies a **low sensitivity** instead. An overall low likelihood of faunal species of conservation concern within the focus area is apparent;
- **Plant Species Compliance Statement:** The findings of the site inspection verify the screening tool outcome of a **low sensitivity** for the Plant Species Theme within the focus area and disputes the sections of **medium sensitivity** as identified by the screening tool. The likelihood of floral species of conservation concern establishing within the focus area is low; and
- **Terrestrial Biodiversity Theme Compliance Statement:** The findings of the site inspection verify the screening tool outcome of a **low sensitivity** for the Terrestrial Biodiversity Theme.

Development activities within the focus area are not anticipated to result in the loss of sensitive floral species, nor will it result in the loss of significant or important faunal habitat. It is, however, recommended that mitigation measures (as presented in section 6) and general good housekeeping be in place to counter the potential for edge effects. We trust that we have interpreted your requirements correctly. Please do not hesitate to contact us if there are any aspects of this memorandum that you would like to discuss.

Yours Faithfully,

Christien Steyn

Senior Floral Ecologist and Discipline Lead (SACNASP REG.NO: 127823/21)

Jandre Potgieter

Faunal Ecologist

Reviewed by,

Christopher Hooton

Senior Faunal Ecologist and Discipline Lead

Declaration of independence and CVs included in Appendix C

REFERENCES

- BirdLife South Africa. Important Bird Areas 2015 [vector geospatial dataset] 2015. Available from the Biodiversity GIS website. Mucina, L. and Rutherford, M.C. (2006).
- Conservation of Agricultural Resources Act (CARA) 43 of 1983.
- Department of Environmental Affairs (2018) National Protected Areas Expansion Strategy for South Africa 2018. Department of Environmental Affairs, Pretoria, South Africa.
- International Union for Conservation of Nature (IUCN) 2022. The IUCN Red List of Threatened Species. Version 2021-3. <https://www.iucnredlist.org/>.
- Mucina, L. and Rutherford, M.C., 2006. The vegetation of South Africa, Lesotho, and Swaziland. South African National Biodiversity Institute.
- National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA).
- National Environmental Management: Biodiversity (Act No.10 of 2004) (NEMBA).
- National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) (NEMPAA).
- National Forests Act, 1998 (Act No. 84 of 1998) (NFA).
- National Web Based Environmental Screening Tool (2023). Accessible online: <https://screening.environment.gov.za/screeningtool/#/pages/welcome>
- SABAP2, 2014. The South Africa Bird Atlas Project 2 database.
- SACAD: Department of Environmental Affairs. (2023). South Africa Conservation Areas Database (SACAD_OR_2023_Q1). Online available: [<http://egis.environment.gov.za>]
- SANBI BGIS (2023). The South African National Biodiversity Institute - Biodiversity GIS (BGIS) [online]. URL: <http://bgis.sanbi.org> as retrieved in 2023.
- SANBI. 2018. 2018 Final Vegetation Map of South Africa, Lesotho and Swaziland [Vector] 2018. Available from the Biodiversity GIS website.
- SANBI. 2022a. The 2022 Red List of Ecosystems (RLE) for terrestrial realm for South Africa - Original extent [Vector] 2021. Available from the Biodiversity GIS website.
- SANBI. 2022b. The 2022 Red List of Ecosystems (RLE) for terrestrial realm for South Africa - remnants [Vector] 2021. Available from the Biodiversity GIS website.
- SAPAD: Department of Environmental Affairs. (2023). South Africa Protected Areas Database (SAPAD_OR_2023_Q1). Online available: [<http://egis.environment.gov.za>].
- Water Research Commission. 2017. SWSA Surface water [Vector] 2017. Available from the Biodiversity GIS website.
- Wilson, J.R.U., Gaertner, M., Richardson, D.M. and Van Wilgen, B.W., 2017. Contributions to the national status report on biological invasions in South Africa. *Bothalia* 47 (2): a2207.

APPENDIX A: PROJECT MAPS

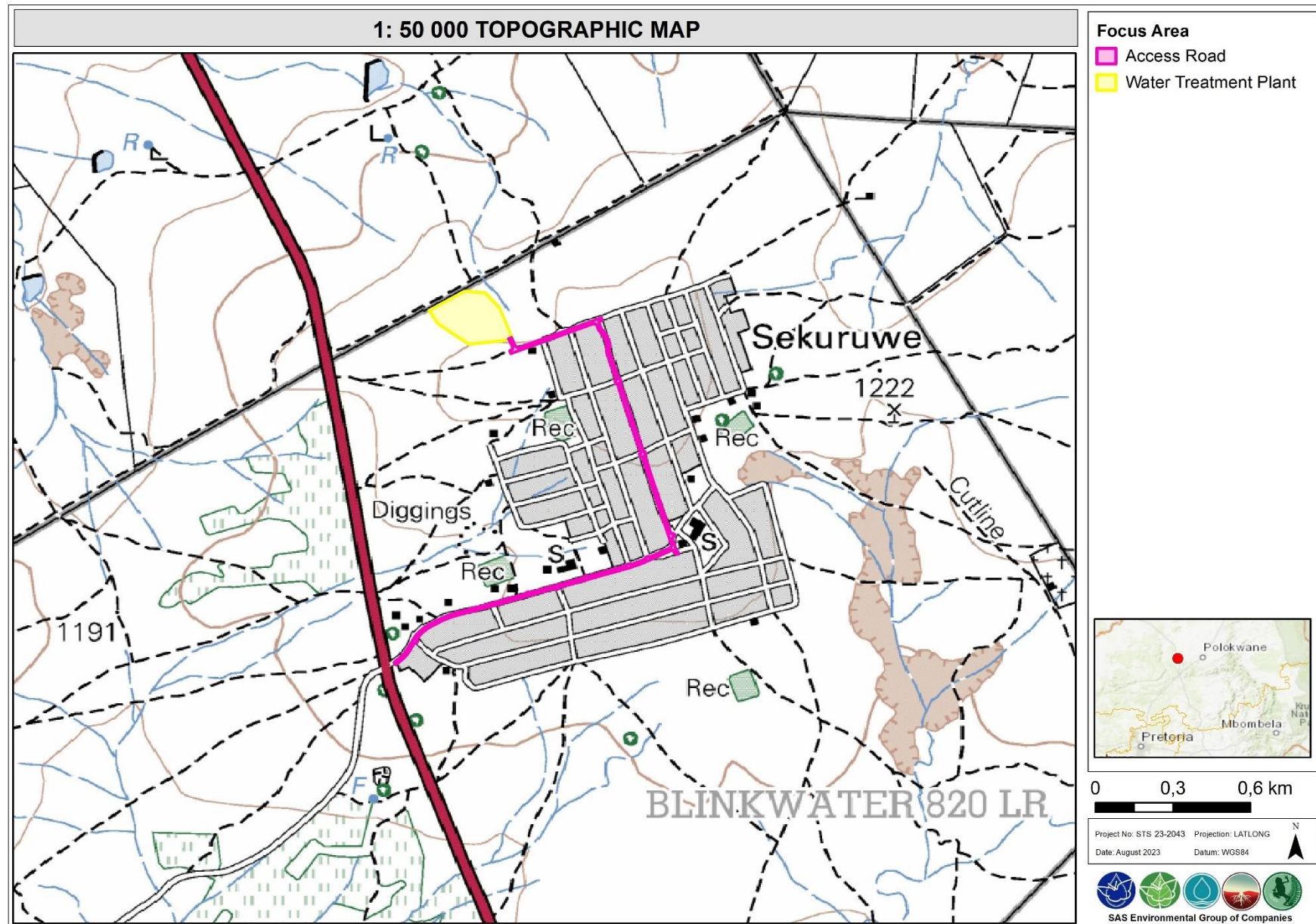


Figure A 1: The focus area depicted on a 1:50 000 topographical map in relation to the surrounding area.

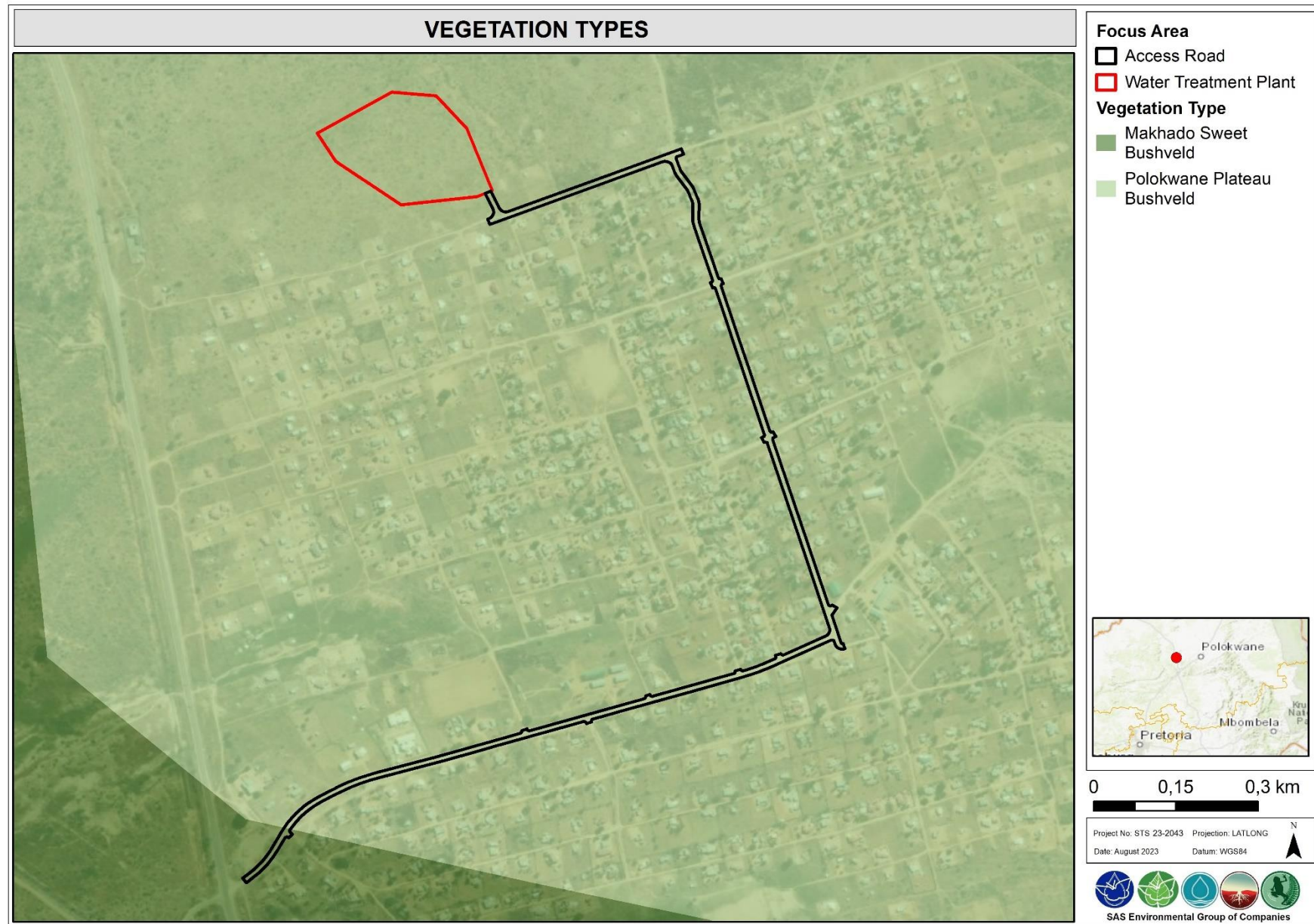


Figure A 2: The focus area and associated Vegetation Types as per the VEGMAP of 2018.

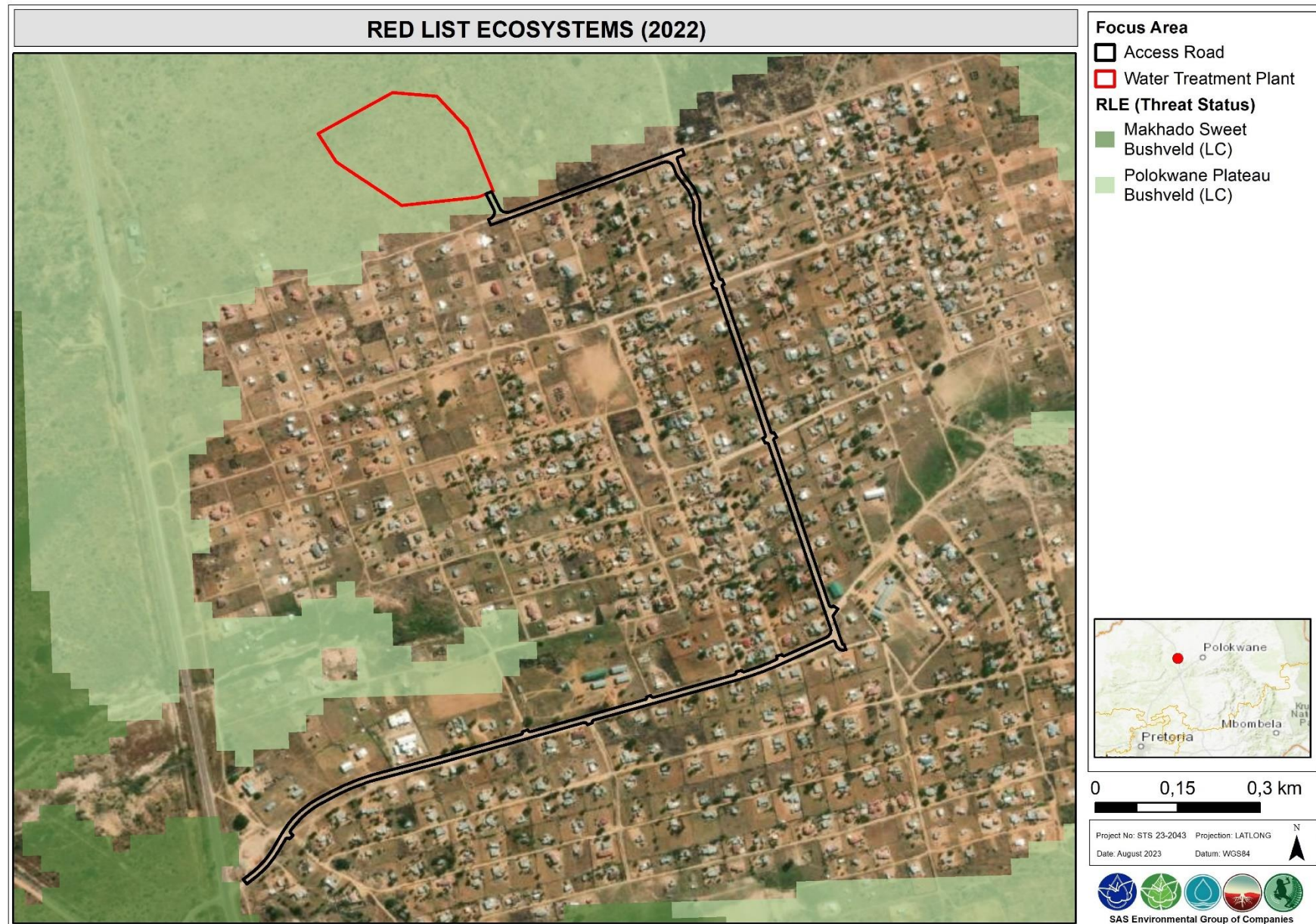


Figure A 3: Threatened Ecosystems associated with the focus area according to the National RLE database (2022).

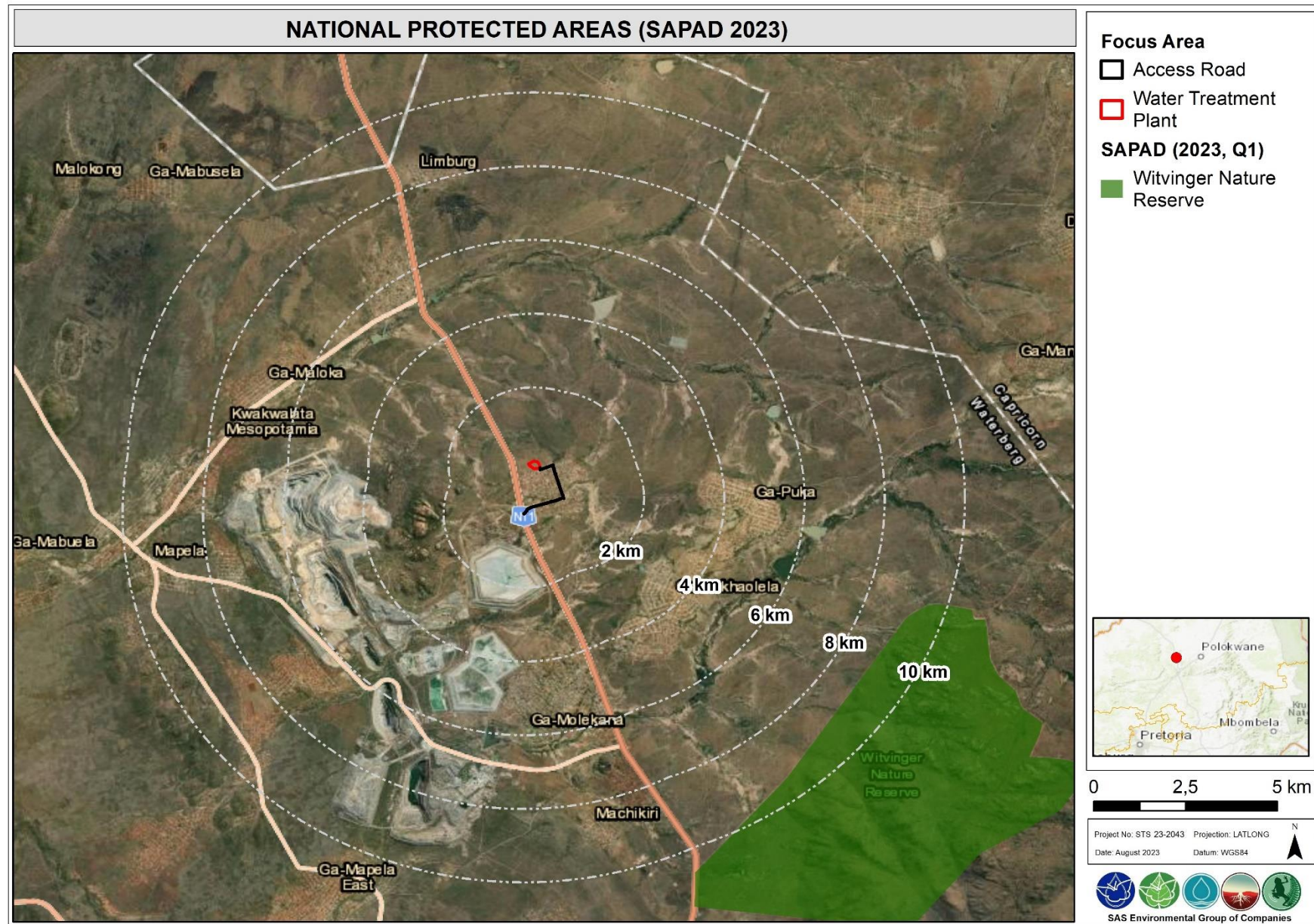


Figure A 4: Nationally protected areas within a 10 km radius of the focus area.

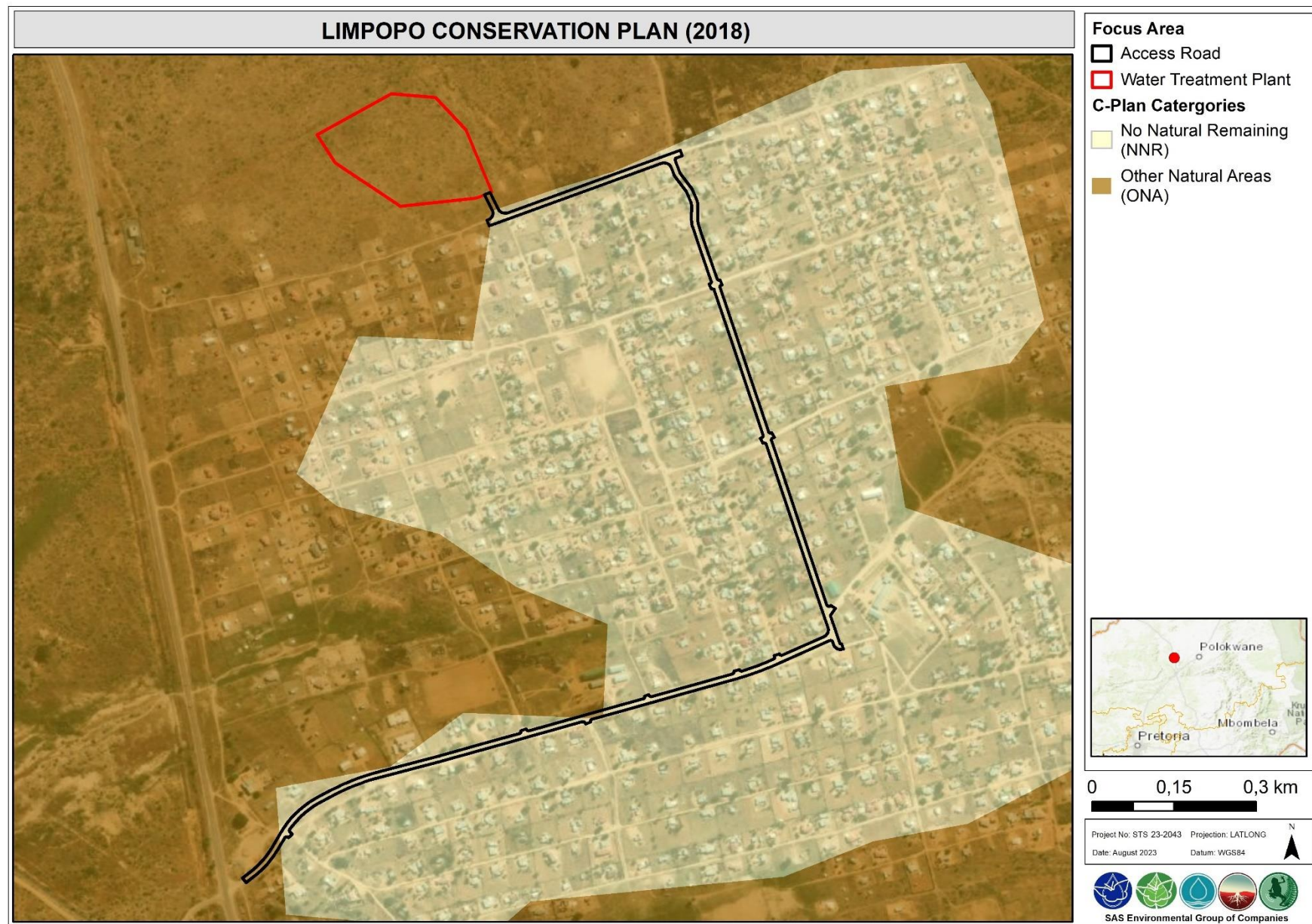


Figure A 5: The focus area in relation to the 2018 Limpopo Conservation Plan (C-Plan).

APPENDIX B: BACKGROUND INFORMATION

Table 3B: Summary of the terrestrial conservation characteristics for the focus area (Quarter Degree Square (QDS) 2328DD).

DETAILS OF THE ASSESSMENT AREA IN TERMS OF MUCINA & RUTHERFORD (2006) AND THE NATIONAL VEGETATION MAP PROJECT (SANBI, 2018) - ORIGINAL EXTENT OF MAPPED VEGETATION TYPE										
Biome(s) and Bioregion(s)	The focus area is located in the Central Bushveld Bioregion , which is situated within the Savanna Biome .									
Vegetation Types	The focus area is situated within two vegetation types, namely the Makhado Sweet Bushveld (SVcb 20) and the Polokwane Plateau Bushveld (SVcb 23) (Figure A2). Specifically, most of the focus area (including the WTW and most of the access road) are located within the Polokwane Plateau Bushveld. In contrast, only a small section of the access road (southwestern section) is located within the Makhado Sweet Bushveld.									
Distribution	Makhado Sweet Bushveld					Polokwane Plateau Bushveld				
	Limpopo Province: Straddling the Tropic of Capricorn, occurs on the plains south of the Soutpansberg, east of the Waterberg and on the apron surrounding the Blouberg and Lerataupje Mountains, and north of the Polokwane Plateau and west of the escarpment, with extensions to Mokopane to the south and to the north near Vivo.					Limpopo Province: The higher-lying plains around Polokwane, north of the Strydpoort Mountains and south of the SVcb 20 Makhado Sweet Bushveld.				
Climate	Summer rainfall with very dry winters.					Summer rainfall with very dry winters.				
	MAP (mm)	MAT (°C)	MFD (days)	MAPE (mm)	MASMS (%)	MAP (mm)	MAT (°C)	MFD (days)	MAPE (mm)	MASMS (%)
	609	17.5	5	2043	77	500	16.9	11	2122	80
Altitude (m)	850 – 1 200					1100 - 1500				
Conservation	VU . Target 19%. About 1% statutorily conserved, mainly in the Bellevue Nature Reserve. Some 27% transformed, mainly by cultivation, with some urban and built-up areas. The southwestern half of the unit has densely populated rural communities. Erosion is low to high.					Least threatened according to remote sensing sources, but with over one third of the remaining vegetation regarded as degraded, would probably be regarded as susceptible. Target 19%. Less than 2% statutorily conserved mainly in the Percy Fyfe and Kuschke Nature Reserves. In addition, 0.7% conserved in other reserves, for example the Polokwane Game Reserve. Some 17% transformed, including about 10% cultivated and 6% urban and built-up. Dense concentration of rural human settlements is found particularly in the eastern and north-western parts of the unit. In some regions, scattered populations of alien <i>Agave</i> , <i>Jacaranda mimosifolia</i> , <i>Melia azedarach</i> , <i>Opuntia ficus-indica</i> and <i>Ricinus communis</i> are of concern. Erosion is high to moderate.				
Geology & Soils	The area is underlain by the gneisses and migmatites of the Hout River Gneiss (Randian Erathem) and the potassium-deficient gneisses of the Goudplaats Gneiss (Swazian Erathem). Sandstones and mudstones of the Matlabas Subgroup (Mokolian Waterberg Group) are also found. Soils include deep, greyish sands, eutrophic plinthic catenas, red, yellow apedal freely drained soils with high base status, clayey in bottomlands.					Migmatites and gneisses of the Hout River Gneiss and the Turfloop Granite are dominant. Some ultramafic and mafic metavolcanics, quartzite, and chlorite schist of the Pietersburg Group are also found. Soils variable, with freely drained soils with high base status, some dystrophic/mesotrophic, eutrophic plinthic catenas. Glenrosa and Mispah soil forms.				

Vegetation & landscape features	Slightly to moderately undulating plains sloping generally down to the north, with some hills in the southwest. Short and shrubby bushveld with a poorly developed grass layer. Remark: This area is transitional between the higher-lying Polokwane Plateau and the lower-lying vegetation units of the Limpopo River Valley.	Moderately undulating plains with short open tree layer with a well-developed grass layer to grass plains with occasional trees at higher altitudes (for example the Mashashane area in the southwest and the south-eastern watershed of the Sand River catchment, such as around Eersteling). Hills and low mountains of SVcb 24 Mamabolo Mountain Bushveld are embedded within this unit. Remark: Woody plants have increased in parts of the unit in the past few decades.
CONSERVATION DETAILS PERTAINING TO THE ASSESSMENT AREA (VARIOUS DATABASES)		
2022 Red List of Ecosystems (Figure A 3)		
This database replaces the NBA (2018), which forms one of the basis databases upon which the RLE database is generated. According to the 2022 Red List of Ecosystems, the focus area is located within the remaining extent of one ecosystem, namely the Polokwane Plateau Bushveld ecosystem (which is a LC ecosystem). Although the Makhado Sweet Bushveld ecosystem (also now considered LC, which is different from the VU status given by Mucina & Rutherford (2006)) is located immediately southwest of the access road, none of the focus area components are located within the remaining extent of this ecosystem. The purpose of listing protected ecosystems is primarily to preserve witness sites of exceptionally high conservation value. The revised list (known as the Red List of Ecosystems 2022) is based on assessments that followed the IUCN Red List of Ecosystems Framework (version 1.1) and covers all 456 terrestrial ecosystem types described in South Africa (Mucina and Rutherford 2006; with updates described in Dayaram et al., 2019). The revised list identifies 120 threatened terrestrial ecosystem types (55 Critically Endangered (CR), 51 Endangered (EN) and 14 VU types). Following a series of consultations with conservation authorities and the public in 2020/21 the Revised list of terrestrial ecosystems that are threatened and in need of protection was the approved by the Minister for implementation in August 2022. The revised list was published in the Government Gazette (Gazette Number 47526, GN 2747) and came into effect on 18 November 2022.		
National Protected & Conservation Areas		
SAPAD (2023, Q1); SACAD (2023, Q1); NPAES (2018) (Figure A 4)	According to the SAPAD (2023, Q1) database³, the focus area is not located directly within any protected areas, however, the assessment area is located within 10 km of a protected area, namely the Witvinger Nature Reserve (~ 9 km southeast of the focus area). According to the SACAD (2023, Q1) database⁴, the focus area is not located directly within any conservation areas nor within 10 kms of any conservation areas. According to the National Protected Areas Expansion Strategy (NPAES) – 2018 database – the focus area is not located within any Protected Areas, Negotiated Areas, or Priority Focus Areas.	
IBA (2015) (Figure A 4)	The focus area is not located within 10 km of an IBA.	

³ **SAPAD (2023):** The definition of protected areas follows the definition of a protected area as defined in the National Environmental Management: Protected Areas Act, (Act 57 of 2003). Chapter 2 of the National Environmental Management: Protected Areas Act, 2003 sets out the "System of Protected Areas", which consists of the following kinds of protected areas - 1. Special nature reserves; 2. National parks; 3. Nature reserves; 4. Protected environments (1-4 declared in terms of the National Environmental Management: Protected Areas Act, 2003); 5. World heritage sites declared in terms of the World Heritage Convention Act; 6. Marine protected areas declared in terms of the Marine Living Resources Act; 7. Specially protected forest areas, forest nature reserves, and forest wilderness areas declared in terms of the National Forests Act, 1998 (Act No. 84 of 1998); and 8. Mountain catchment areas declared in terms of the Mountain Catchment Areas Act, 1970 (Act No. 63 of 1970).

⁴ **SACAD (2023):** The types of conservation areas that are currently included in the database are the following: 1. Biosphere reserves, 2. Ramsar sites, 3. Stewardship agreements (other than nature reserves and protected environments), 4. Botanical gardens, 5. Transfrontier conservation areas, 6. Transfrontier parks, 7. Military conservation areas and 8. Conservancies.

CONSERVATION DETAILS PERTAINING TO THE ASSESSMENT AREA (VARIOUS DATABASES)	
Limpopo Conservation Plan (C-Plan, 2018; Figure A 5)	
The assessment area is associated with two C-Plan categories according to the updated 2018 Limpopo Province Map of CBAs and ESAs.	
Other Natural Areas	The entire WTW plant and small sections of the access road are located within an area considered ONAs. These are natural and intact areas but are not required to meet targets, nor have they been identified as CBAs or ESAs. Land Management Recommendations: No management objectives, land management recommendations or land-use guidelines are prescribed. These areas are nevertheless subject to all applicable town and regional planning guidelines and policy. Where possible existing "Not Natural" areas should be favoured for development before "ONAs".
No Natural Remaining	Most of the access road is located within areas considered to have NNR. These are areas with no significant direct biodiversity value. These are either not natural areas or degraded natural areas that are not required as ESA. These areas include intensive agriculture, urban, industry, and human infrastructure. Land Management Recommendations: No management objectives, land management recommendations or land-use guidelines are prescribed. These areas are nevertheless subject to all applicable town and regional planning guidelines and policy. Where possible existing "Not Natural" areas should be favoured for development before "Other natural areas".
Waterberg District Bioregional Plan	
The Waterberg District Bioregional Plan is based on the Limpopo C-Plan, although it has been refined (in places) by incorporating input from various stakeholders as well as available spatial planning tools (e.g., Waterberg Environmental Management Framework). As with the Limpopo C-Plan, the Bioregions indicated that the assessment area is associated with two conservation categories. In this instance, the Bioregional Plan categories are the same as those indicated by the Limpopo C-Plan.	
ONA	The entire WTW plant and small sections of the access road are located within an area considered to be ONAs. These are natural and intact areas but are not required to meet targets, nor have they been identified as CBAs or ESAs. Land Management Objective: Manage land to optimize sustainable utilisation of natural areas.
No Natural Habitat Remaining	Most of the access road is located within areas considered to have No Natural Habitat Remaining. These are areas with no significant direct biodiversity value. These are either not natural areas or degraded natural areas that are not required as ESA. These areas include intensive agriculture, urban, industry, and human infrastructure. Land Management Objective: Manage land to optimize sustainable utilisation of natural areas.
2017 Strategic Water Source Areas (SWSA)	
SWSA (2017)	The focus area is not within 10 kms of a SWSA for surface water. Surface water SWSAs are defined as areas of land that supply a disproportionate (i.e., relatively large) quantity of mean annual surface water runoff in relation to their size. They include transboundary areas that extend into Lesotho and Swaziland. The sub-national Water Source Areas (WSAs) are not nationally strategic as defined in the report but were included to provide a complete coverage.

NBA = National Biodiversity Assessment; SAPAD = South African Protected Areas Database; SACAD = South African Conservation Areas Database; NPAES = National Protected Areas Expansion Strategy; IBA = Important Bird Area; MAP = Mean annual precipitation; MAT = Mean annual temperature; MAPE = Mean annual potential evaporation; MFD = Mean Frost Days; MASMS = Mean annual soil moisture stress (% of days when evaporative demand was more than double the soil moisture supply); CBA = Critical Biodiversity Areas; ESA = Ecological Support Areas.

APPENDIX C: DETAILS, EXPERTISE AND CURRICULUM VITAE OF SPECIALISTS

1. (a) (i) Details of the specialist who prepared the report

Chris Hooton	BTech Nature Conservation (Tshwane University of Technology)
Christien Steyn	MSc Plant Science (University of Pretoria)
Jandre Potgieter	BSc. Entomology (University of Pretoria)

1. (A). (ii) The expertise of that specialist to compile a specialist report including a curriculum vitae

Company of Specialist:	Scientific Terrestrial Services		
Postal address:	PO. Box 751779, Gardenvue		
Postal code:	2047	Fax:	086 724 3132
Telephone:	011 616 7893		
Name / Contact person:	Christopher Hooton		
E-mail:	chris@sasenvgroup.co.za		
Qualifications	BTech Nature Conservation (Tshwane University of Technology) National Diploma Nature Conservation (Tshwane University of Technology)		
Name / Contact person:	Christien Steyn		
E-mail:	christien@sasenvgroup.co.za		
Qualifications	MSc (Plant Science) (University of Pretoria) BSc (Hons) Plant Science (University of Pretoria) BSc (Environmental Sciences) (University of Pretoria)		
Registration / Associations	Professional member of the South African Council for Natural Scientific Professions (SACNASP – Reg No. 127823/21) Member of the Botanical Society of South Africa (BotSoc) Member of the Grassland Society of South Africa (GSSA) Member of the Land Rehabilitation Society of Southern Africa (LARSSA) Member of the South African Association of Botanists (SAAB) Member of the South African Wildlife Management Association (SAWMA)		
Name / Contact person:	Jandre Potgieter		
E-mail:	jandre@sasenvgroup.co.za		
Qualifications	PGCE Senior and Intermediate Phase (UNISA) BSc (Hons) Entomology (University of Pretoria) BSc Entomology (University of Pretoria)		

1. (b) a declaration that the specialist is independent in a form as may be specified by the competent authority

I, Chris Hooton Steyn, declare that -

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

Signature of the Specialist

I, Christien Steyn, declare that -

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



Signature of the Specialist

I, Jandre Potgieter, declare that -

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



Specialist Signature



**SAS ENVIRONMENTAL GROUP OF COMPANIES –
SPECIALIST CONSULTANT INFORMATION**

CURRICULUM VITAE OF CHRISTOPHER HOOTON

PERSONAL DETAILS

Position in Company	Senior Scientist, Member Biodiversity Specialist
Joined SAS Environmental Group of Companies	2013

EDUCATION

Qualifications

BTech Nature Conservation (Tshwane University of Technology)	2013
National Diploma Nature Conservation (Tshwane University of Technology)	2008

AREAS OF WORK EXPERIENCE

South Africa – Gauteng, Mpumalanga, Northwest, Limpopo, KwaZulu-Natal, Eastern Cape, Western Cape, Northern Cape, Free State

Africa - Zimbabwe, Sierra Leone, Zambia

KEY SPECIALIST DISCIPLINES

Biodiversity Assessments

- Floral Assessments
- Faunal Assessments
- Biodiversity Actions Plan (BAP)
- Biodiversity Management Plan (BMP)
- Alien and Invasive Control Plan (AICP)
- Ecological Scan
- Protected Tree and Floral Marking and Reporting
- Biodiversity Offset Plan

Freshwater Assessments

- Freshwater Verification Assessment
- Freshwater (wetland / riparian) Delineation and Assessment
- Freshwater Eco Service and Status Determination
- Rehabilitation Assessment / Planning



SAS ENVIRONMENTAL GROUP OF COMPANIES – SPECIALIST CONSULTANT INFORMATION

CURRICULUM VITAE OF CHRISTIEN STEYN

PERSONAL DETAILS

Position in Company	Senior Floral Ecologist and Discipline Lead
Joined SAS Environmental Group of Companies	2018

MEMBERSHIP IN PROFESSIONAL SOCIETIES

Professional member of the South African Council for Natural Scientific Professions (SACNASP – Reg No. 127823/21)
 Member of the Botanical Society of South Africa (BotSoc)
 Member of the Grassland Society of South Africa (GSSA)
 Member of the Land Rehabilitation Society of Southern Africa (LARSSA)
 Member of the South African Association of Botanists (SAAB)
 Member of the South African Wildlife Management Association (SAWMA)

EDUCATION

Qualifications

MSc Plant Science (University of Pretoria)	2017
BSc (Hons) Plant Science (Invasion Biology) (University of Pretoria)	2014
BSc Environmental Science (University of Pretoria)	2013

Short courses and Training

- BotSoc Branch: Species Environmental Assessment Guidelines Course (2022).
- Advanced Grass Identification Course (2021).
- Practical Plant Identification, including Herbarium Usage and Protocols.
- Vegetation Classification and Mapping: Use of Geographic Information System for understanding vegetation pattern and biodiversity conservation.
- Introduction to Statistics for Biologists: Applications of plant ecology principles in plant conservation, i.e., species distribution modelling, alien plant invasions, conservation planning.
- International Plant Functional Trait Course: Hands-on, field-based exploration of plant functional traits, along with experience in the usage of plant traits data in climate-change research and ecosystem ecology. <https://www.uib.no/en/rg/EECRG/97477/plant-functional-traits-course-2>

AREAS OF WORK EXPERIENCE

South Africa – Gauteng, Mpumalanga, Northwest, Limpopo, KwaZulu-Natal, Northern Cape, Free State

KEY SPECIALIST DISCIPLINES

Biodiversity Assessments

- Terrestrial Ecological and Biodiversity Scoping Assessments
- Terrestrial Ecological and Biodiversity Screening Assessments
- Floral Assessments
- Input into Terrestrial Rehabilitation Plan design with the focus on the re-establishment of vegetation
- Floral Rescue and Relocation Plans
- Alien and Invasive Plant Control and Management Plans (AIPCPs)
- Alien and Invasive Plant Identification and awareness training
- Terrestrial Monitoring
- Protected Tree and Floral Marking and Reporting
- Desktop Studies, Mapping and Background Information Research



**SAS ENVIRONMENTAL GROUP OF COMPANIES –
SPECIALIST CONSULTANT INFORMATION**

CURRICULUM VITAE OF JANDRE POTGIETER

PERSONAL DETAILS

Position in Company	Faunal Ecologist
Joined SAS Environmental Group of Companies	2022

EDUCATION

Qualifications

PGCE Senior and intermediate phase (UNISA)	2021
BSc (Hons) Entomology (University of Pretoria)	2014
BSc Entomology (University of Pretoria)	2013

AREAS OF WORK EXPERIENCE

South Africa – Gauteng, Eastern Cape, Mpumalanga, KwaZulu-Natal, Limpopo, North West, Western Cape, Free State and Northern Cape.

KEY SPECIALIST DISCIPLINES

Biodiversity Assessments

- Faunal Assessments