Ecological/Terrestrial Biodiversity Specialist Study for the Proposed Construction of Rethuseng Special School, on the Remaining Extent of Farm Cromford 690-LR, Blouberg Local Municipality, Limpopo.

Ourbiosphere Environmental (Pty) Ltd

Client: Ourbiosphere Environmental (Pty) Ltd

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EXECUTIVE SUMMARY

BioAssets CC was appointed by Ourbiosphere Environmental (Pty) Ltd to assess the possible impacts of the Proposed Construction of Rethuseng Special School, on the Remaining Extent of Farm Cromford 690-LR, Blouberg Local Municipality, Limpopo. The project applicant, Limpopo Department of Public Works, Roads and Infrastructure (LDPWR&I) on behalf of Limpopo Department of Education (DoE). Rethuseng Special School is to be built on the remaining portion of the Bakone Ba Matlala a Thaba Tribe's farm, Cromford 690-LR, Blouberg Local Municipality, Capricorn District Municipality, .

Ourbiosphere was appointed by the applicant as the independent Environmental Assessment Practitioner (EAP), to conduct the legally required Basic Assessment (BA) process.

An ecological analysis is necessary because of the possible ecological effects that the proposed Rethuseng Special School development may have on the local ecology and ecosystem. This is necessary to identify any areas that may be negatively impacted by the proposed development, such as areas that are ecologically sensitive or conservationally significant, plant and faunal species, and important watercourses, wetlands, and other aquatic ecological features and habitats.

Potential ecological impacts posed by the proposed development to the local ecosystem and ecology, must be identified, evaluated, rated and discussed. Impact mitigation and management measures in accordance with the requirements of the National Environmental Management Act

(Act 107 of 1998) Mitigation Hierarchy, must subsequently be recommended. This must be done in order to attempt to reduce/alleviate the adverse effects of identified potential ecological impacts associated with the proposed development.

BioAssets CC was consequently appointed by the EAP as the independent ecological specialist, to conduct the required Ecological study for the proposed development. This report constitutes the Ecological Assessment.

Date of Ecological Site Assessment

A site assessment of the proposed development area was conducted on 25 August 2025. This date forms part of the winter season. It must therefore be noted that the seasonal timing of the assessment was not necessarily favourable for successful identification of all plant species individuals.

Methodology

The assessment area was assessed on foot in a grid formation. Visual observations/identifications were made of general terrestrial botanical/vegetation habitats and their conditions as well as any ecologically sensitive/conservationally significant areas/habitats within the assessment area. Visual observations/identifications were made of general and conservationally significant plant species encountered within the assessment area. Identified plant species were listed and categorised as per the Red Data Species List; Protected Species List of the National Forests Act (Act 84 of 1998), as well as the Invasive Species List of the National Environmental Management: Biodiversity Act (Act 10 of 2004), Alien and Invasive Species Regulations, 2014. A desktop assessment was conducted of conservationally significant faunal and avifaunal species which can potentially be encountered within the assessment area.

Significant watercourses and/or wetlands and/or other aquatic ecological features/habitats were identified, delineated and discussed as per the accepted methodology, if potentially found to be present within the assessment area. If any Red Data Species Listed, nationally or provincially

protected plant species, ecologically sensitive or conservationally significant areas, or significant watercourses, wetlands, or other aquatic ecological features/habitats were found within the assessment area, georeferenced photos of them were taken. Their precise locations were indicated in a Geographic Information System (GIS) mapping format by doing this.

The Site Ecological Importance (SEI), Present Ecological State (PES), Ecological Importance and Sensitivity (EIS) as well as Recommended Ecological Category (REC) of the assessment area were determined and discussed. Potential ecological impacts posed by the proposed development to the local ecosystem and ecology, were identified, evaluated, rated and discussed.

Even though the Terrestrial Biodiversity Theme is classified as Very High Sensitivity, the real circumstances surrounding the proposed development site defy this status. After visiting the location and consulting SANBI, the high sensitivity is disputed and replaced with a low sensitivity. From an ecological perspective, the site for the proposed school is viable for development.

Considering the much-needed special school in the area, it is thought that the planned project site is suitable for the construction of the proposed project. It is unlikely that the proposed school will have any long-term impacts that cannot be prevented or lessened to a controllable degree through adherence to the EMPr. The site's conservation value is not regarded as exceptional, even though the development might have have an impact on areas that are ESAs, and CBA2 Focus Area. Its location and context suggest that these impacts are likely to be more acceptable and won't significantly impede future conservation efforts. Although the site boundary on the south seem to have slightly encroached onto CBA2, the site plan does not in any way touch the CBA2, this will not be a factor. In any case, the CBA2 end right at Juno road.

Terrestrial biodiversity theme low rating is mostly influence by the fact that the affected project area has been transformed by agricultural activity purposes. The determinant factor is the presence of the Mamehlabe rural dwellings on the eastern boundary.

It is also worthy to note that the plant species theme sensitivity was classified by the web based environmental screening as Low sensitivity. This is rather a true reflection of the plant species on

the ground as established by a site visit. Animal species sensitivity theme which was classified as low sensitivity is hereby confirmed as indeed Low sensitivity rating.

It is recommended that the development be approved, all the mitigation measures referred to in this report be incorporated into an Environmental Management Programme.

The planned development's location on the project site is sensitive to terrestrial biodiversity, dominated by Ngongoni veld from the viewpoint of conservation planning because:

- Polokwane plateau Central Bushveld - Polokwane Plateau Bushveldveld (SVCB 23)
- National and provincial CBA areas.

The above areas listed are all areas of national, provincial, district or municipal conservation significance considered important in terms of habitats, species, ecosystems, and ecosystem services conservation required to meet national, provincial, district and municipal conservation targets.

During Site inspections observations on current impacts, fauna and flora species composition, general habitat condition, and habitat connectivity were documented during meandering and transect walks. Major impacts specific to the project site included land clearance to accommodate services infrastructure, infilling, and fragmentation (drainage canal construction; roads).

Based on floristic composition, vegetation structure and level of degradation, two plant communities were identified, and included Polokwane plateau Central Bushveld - Polokwane Plateau Bushveldveld (svcb 23). Vegetation & Landscape Features Moderately undulating plains with short open tree layer with a well-developed grass layer to grass plains with occasional trees, **some Taxa** Small Trees: *Vachella caffra* , *V. karroo*, *V. tortilis* subsp. *heteracantha*, *Combretum molle*, *dominates the site though sparsely distributed.* Succulent Tree: *Aloe marlothii* subsp. *marlothii*. *Combretum hereroense*, *and the protected Schlerocrya birrea were observed. In terms of grass species, Eragrostis curvula* (d), *Themeda triandra were observed but Panicum maximum maximum dominates the grass.* , *Pogonarthria squarrosa*, *Sporobolus africanus*. Herbs: *Felicia mossamedensis*, *Hermbstaedtia odorata*, *Pollichia campestris*.

Conclusion

The assessment area scored a very low Site Ecological Importance (SEI) value and is not viewed as being of any overall conservational significance/value for habitat preservation or continued ecological functionality and -integrity persistence in support of the surrounding ecosystem, broader vegetation type or any faunal and avifaunal habitats.

The preferential water flow path/drainage line and wetland both scored low/marginal Ecological Importance and Sensitivity (EIS) values and are consequently merely viewed as being of very low, if any, overall conservational significance/value for habitat preservation in support of the surrounding ecosystem persistence and the continued ecological functionality and -integrity of the local and quaternary surface water catchment- and drainage area.

It is consequently not anticipated that the proposed development would pose any significant risk to achieving and maintaining national and/or provincial conservation- and persistence targets of the area or to the continued ecological functionality and -integrity of the local surrounding landscape.

It is furthermore also not anticipated that the proposed development would pose any significant risk to- or impact on the faunal or avifaunal communities throughout the local or broader surrounding landscape. No significant potential long-term ecological impacts were identified for the construction phase of the proposed development. Sewage contamination of the preferential water flow path/drainage line and wetland as well as groundwater resources was identified and addressed as the only significant potential long-term ecological impact, associated with the operational phase of the established Rethuseng Special School.

The potential long-term ecological impacts identified for the proposed development, could potentially merely add low cumulative impact to the existing negative impacts caused by the extensive existing residential, industrial and commercial transformation associated with the township, throughout the local and broader surrounding landscape.

It is however the opinion of the specialist, by application of the NEMA Mitigation Hierarchy, that all the identified potential cumulative ecological impacts associated with the proposed development, can be suitably reduced and mitigated to within acceptable residual levels, by implementation of the recommended mitigation measures. It is therefore not anticipated that the proposed development will add any significant residual cumulative ecological impacts to the surrounding environment, if all recommended mitigation measures as per this ecological report are adequately implemented and managed, for both the construction- and subsequent operational phases of the proposed development.

It is the opinion of the specialist that the proposed development of the assessment area should be considered by the competent authority for Environmental Authorisation and approval. All recommended mitigation measures as per this ecological report must however be adequately implemented and managed for both the construction- and subsequent operational phases of the proposed development. All necessary authorisations, permits and licenses must also be obtained prior to the commencement of any construction.

Abbreviations

BA Basic Assessment

CARA Conservation of Agricultural Resources Act (Act 43 of 1983)

CBA Critical Biodiversity Area

DWS Department of Water and Sanitation

EAP Environmental Assessment Practitioner

EIA Environmental Impact Assessment

EIS Ecological Importance and Sensitivity

ESA Ecological Support Area

MAP Mean Annual Precipitation

NEMBA National Environmental Management: Biodiversity Act (Act 10 of 2004)

NEMA National Environmental Management Act (Act 107 of 1998)

NFA National Forests Act (Act 84 of 1998)

NWA National Water Act (Act 36 of 1998)

ONA Other Natural Area

PES Present Ecological State

REC Recommended Ecological Category

SACNASP South African Council for Natural Scientific Professions

SANBI South African National Biodiversity Institute

SEI Site Ecological Importance

WULA Water Use License Application

DECLARATION OF INDEPENDENCE

The Environmental Impact Assessment Regulations (Regulation 17 of Government Notice No R354 of 2010), requires that certain information is included in specialist reports. The terms of reference, purpose of the report, methodologies, assumptions and limitations, impact assessment and mitigation (where relevant to the scope of work) and summaries of consultations (where applicable) are included within the main report. Other relevant information is set out below:

Expertise of author:

- Working in the field of ecology since 1996 and in specific vegetation related assessments since 2000.
- Worked in the field of freshwater ecology and wetlands since 2000.
- Involved with visual assessments since 2009.
- Is registered as a Professional Natural Scientist with the South African Council for Natural Scientific Professions (Reg. No. 400109/95).

Declaration of independence:

BioAssets in an independent consultant and hereby declare that it does not have any financial or other vested interest in the undertaking of the proposed activity, other than remuneration for the work performed in terms of the National Environmental Management Act, 1998 (Act 107 of 1998). In addition, remuneration for services provided by BioAssets is not subjected to or based on approval of the proposed project by the relevant authorities responsible for authorising this proposed project.

Disclosure:

BioAssets 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 BioAssets by the client, and in addition to information obtained during the course of this study, BioAssets present the results and conclusion within the associated document to the best of the author's professional judgement and in accordance with best practise.

_____ 29 September 2025

Dr Wynand Vlok Date

ASSUMPTIONS AND LIMITATIONS Availability of baseline information

Baseline information for the study of the site was obtained from historic maps, photographs and reports. The desktop survey provided adequate baseline information for the area and therefore this was not a constraint.

Constraints

The survey was conducted during daytime only. All the different habitats at the site was investigated and it was therefore possible to complete a rapid survey and obtain information on the habitats that are present and the site, or that are likely to occur there.

Bio-physical constraints

Weather conditions during the period were warm with a light wind blowing. The region had received rainfall prior to the site visit and the vegetation was drying but wet, as it was towards the end of the wet season. There was no standing water in the veld during the time of the survey. This will have obvious implications on the biodiversity (not applicable for this study) that are likely to occur in the area. Nevertheless, the conditions during the survey were suitable for a survey of this nature. The late summer survey was ideal for a more detailed botanical survey and the focus was therefore only on protected trees in the proposed corridor as well as red data species.

Confidentially constraints

There were no confidentially constraints.

Implications for the study

Apart from the prevailing weather conditions at the site and the winter conditions, there were no other significant constraints that would negatively impact upon the study. Access to all areas of the study site was possible. There is sufficient good quality data available in the literature that partially negates the negative effect that the type of survey had on the quality of the assessment. As noted, the autumn/winter survey restrict the number of species present for identification.

Table of Contents

1 INTRODUCTION

BioAssets CC was appointed by Ourbiosphere Environmental (Pty) Ltd to assess the possible impacts of the Proposed Construction of Rethuseng Special School, on the Remaining Extent of Farm Cromford 690-LR, Blouberg Local Municipality, Limpopo. The project applicant, Limpopo Department of Public Works, Roads and Infrastructure (LDPWR&I) on behalf of Limpopo Department of Education (DoE). Rethuseng Special School is to be built on the remaining portion of the Bakone Ba Matlala a Thaba Tribe's farm, Cromford 690-LR, Blouberg Local Municipality, Capricorn District Municipality.

Ourbiosphere was appointed by the applicant as the independent Environmental Assessment Practitioner (EAP), to conduct the legally required Basic Assessment (BA) process.

Due to the nature of potential ecological impacts posed by the proposed development to the local ecosystem and ecology, an Ecological study is required. This is required in order to determine the potential presence of ecologically sensitive/conservationally significant areas, plant- and faunal species as well as significant watercourses and/or wetlands and/or other aquatic ecological features/habitats, which may be adversely affected by the proposed development.

Potential ecological impacts posed by the proposed development to the local ecosystem and ecology, must be identified, evaluated, rated and discussed. Impact mitigation and management measures in accordance with the requirements of the National Environmental Management Act (Act 107 of 1998) Mitigation Hierarchy, must subsequently be recommended. This must be done in order to attempt to reduce/alleviate the adverse effects of identified potential ecological impacts associated with the proposed development.

BioAssets CC was consequently appointed by the EAP as the independent ecological specialist, to conduct the required Ecological study for the proposed development. This report constitutes the Ecological Assessment.

Preliminary preparations conducted prior to the ecological site assessment, were as follows:

- Georeferenced spatial information was obtained of the proposed development area, in order to determine the direct impact footprint area.
- A desktop study was conducted of the most up-to-date information/data available on the relevant vegetation types, national/provincial conservation significance status and the potential/likely presence of watercourses/wetlands associated with the proposed development area.
- A desktop study was conducted of conservationally significant faunal and avifaunal species which can potentially be encountered within the proposed development area.

2. Date of Ecological Site Assessment

- A site assessment of the proposed development area was conducted on 25 August 2025. This date forms part of the winter season. It must therefore be noted that the seasonal timing of the assessment was not necessarily favourable for successful identification of all plant species individuals.

3. Assessment Rational

South Africa is a country rich in natural resources and splendour and is rated as having some of the highest biodiversity in the world. Other than the pure aesthetic value which our biodiversity and natural resources provides, it also plays a significant positive role in our national economy. While continuous economic development and progress is a key national focus area, which forms a cornerstone in the socio-economic improvement of society and the livelihoods of communities and individuals, the preservation and management of the integrity and sustainability of our natural resources is also essential in achieving this objective.

Socio-economic development and progress can therefore not be completely inhibited for the sake of ensuring environmental conservation; solutions and compromises rather need to be explored in order to achieve the need for socio-economic development without unreasonably jeopardising the needs of environmental conservation. A sustainable and responsible balance needs to be maintained in order to accommodate the requirements of both.

Adequate, sustainable and responsible utilisation and management of our natural resources is crucial. Finding the required balance between socio-economic development and environmental conservation, should therefore always be a priority focus point during any proposed development process.

Various environmental legislation in South Africa makes provision for the protection of our natural resources and the functionality of ecological systems in order to ensure sustainability. Such acts include the National Environmental Management: Biodiversity Act (Act 10 of 2004), National Forests Act (Act 84 of 1998), Conservation of Agricultural Resources Act (Act 43 of 1983), National Water Act (Act 36 of 1998) and framework legislation such as the National Environmental Management Act (Act 10 of 2004).

An Ecological Assessment of the proposed development area was therefore conducted in order to identify and quantify any potential ecological impacts, associated with the proposed development.

4 Objectives of the Survey

- Describe the general terrestrial botanical/vegetation habitats within the assessment area and identify and list conservationally significant plant species encountered within the assessment area. List any nationally- and/or provincially protected- and/or Red Data Listed plant species.
- Identify and discuss any ecologically sensitive/conservationally significant areas/habitats, if potentially found to be present within the assessment area.
- Conduct a desktop assessment of conservationally significant faunal species which can potentially be encountered within the assessment area.
- Assess and discuss the Site Ecological Importance (SEI) of the assessment area and directly surrounding areas, in order to provide an indication of the overall ecological conservational significance/value of the assessment area.
- Identify, delineate and discuss any significant watercourses and/or wetlands and/or other aquatic ecological features/habitats, if potentially found to be present within the assessment area.
    - Assess and discuss the simplified Present Ecological State (PES) of all such identified significant aquatic features associated with the assessment area and directly surrounding areas. This must be done in order to provide an indication of the current ecological condition as well as the extent and severity of degradation and/or transformation of the aquatic features, if applicable**.**
    - Assess and discuss the Ecological Importance and Sensitivity (EIS) of all such identified significant aquatic features associated with the assessment area and directly surrounding areas. This must be done in order to provide an indication of the ecological sensitivity/conservational significance/value of the aquatic features, if applicable.
    - Assess and discuss the Recommended Ecological Category (REC) of all such identified significant aquatic features associated with the assessment area and directly surrounding areas.

- Identify, evaluate, rate and discuss any potential ecological impacts associated with the proposed development. Provide recommendations on impact mitigation and management measures in accordance with the requirements of the NEMA (Act 107 of 1998) Mitigation Hierarchy, in order to attempt to reduce/alleviate the adverse effects of identified potential ecological impacts.
- Provide recommendations on the ecological suitability/acceptability of the assessment area for the proposed development.

- A digital report (this document) as well as digital .KML files will be provided to the EAP, of any identified ecologically sensitive/conservationally significant areas and/or significant watercourses and/or wetlands and/or other aquatic ecological features/habitats, if potentially found to be present within the assessment area.

5. Methodology

- The proposed development area was assessed on foot and with the use of a vehicle.
- Visual observations/identifications were made of general terrestrial botanical/vegetation habitats and their conditions as well as any ecologically sensitive/conservationally significant areas/habitats within the assessment area.

Visual observations/identifications were made of general and conservationally significant plant species encountered within the assessment area.

Identified plant species were listed and categorised as per the Red Data Species List; Protected Species List of the National Forests Act (Act 84 of 1998), Provincially Protected species of the Free State's Nature Conservation Ordinance (No 8 of 1969) as well as the Invasive Species List of the National Environmental Management: Biodiversity Act (Act 10 of 2004), Alien and Invasive Species Regulations, 2014.

A desktop assessment was conducted of conservationally significant faunal species which can potentially be encountered within the assessment area. The Virtual Museum and the IUCN Red List of Threatened Species were used for the desktop assessment.

The likelihood was discussed of identified faunal species utilising the terrestrial botanical/vegetation habitats and significant aquatic ecological features/habitats within the assessment area as refuge or for breeding, foraging and/or persistence purposes.

No actual on-site trapping, sampling or specifically focused assessments of any faunal species was conducted.

Faunal species encountered during the site visit were however noted and discussed.

The Site Ecological Importance (SEI) of the assessment area was determined and discussed as per the tables below.

The SEI of an area is considered to be a function of the Biodiversity Importance (BI) of the receptor (e.g. species of conservation concern, the vegetation/fauna community or habitat type present on the site) and its resilience to impacts, expressed as Receptor Resilience (RR). SEI = BI + RR

BI in turn, is a function of Conservation Importance (CI) and the Functional Integrity (FI) of the receptor BI = CI + FI

Table 1: Criteria for CI calculations

Conservation Importance	**Fulfilling Criteria**

Very High	Confirmed or highly likely occurrence of CR, EN, VU or Extremely Rare or Critically Rare species that have a global EOO of < 10 km2. Any area of natural habitat of a CR ecosystem type or large area (> 0.1% of the total ecosystem type extent) of natural habitat of EN ecosystem type. Globally significant populations of congregatory species (> 10% of global population).
High	Confirmed or highly likely occurrence of CR, EN, VU species that have a global EOO of > 10 km2. IUCN threatened species (CR, EN, VU) must be listed under any criterion other than A. If listed as threatened only under Criterion A, include if there are less than 10 locations or < 10 000 mature individuals remaining. Small area (> 0.01% but < 0.1% of the total ecosystem type extent) of natural habitat of EN ecosystem type or large area (> 0.1%) of natural habitat of VU ecosystem type. Presence of Rare species. Globally significant populations of congregatory species (> 1% but < 10% of global population).
Medium	Confirmed or highly likely occurrence of populations of NT species, threatened species (CR, EN, VU) listed under Criterion A only and which have more than 10 locations or more than 10 000 mature individuals. Any area of natural habitat of threatened ecosystem type with status of VU. Presence of range-restricted species. > 50% of receptor contains natural habitat with potential to support SCC.
Low	No confirmed or highly likely populations of SCC. No confirmed or highly likely populations of range-restricted species. < 50% of receptor contains natural habitat with limited potential to support SCC.
Very Low	No confirmed and highly unlikely populations of SCC. No confirmed and highly unlikely populations of range-restricted species. No natural habitat remaining.

Table 2: Criteria for FI calculations

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

Table 3: Criteria for BI calculations

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

Table 4: Criteria for RR calculations

Receptor Resilience	Fulfilling Criteria
Very High	Habitat that can recover rapidly (~ less than 5 years) to restore > 75%28 of the original species composition and functionality of the receptor functionality, or species that have a very high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a very high likelihood of returning to a site once the disturbance or impact has been removed.
High	Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.
Medium	Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a moderate likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a moderate likelihood of returning to a site once the disturbance or impact has been removed.
Low	Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a low likelihood of returning to a site once the disturbance or impact has been removed.

Table 5: Criteria for SEI calculations

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

Table 6: Interpretation of SEI calculation results

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

Significant watercourses and/or wetlands and/or other aquatic ecological features/habitats were identified, delineated and discussed as per the accepted methodology described below, if potentially found to be present within the assessment area.

For the purposes of this investigation a wetland was defined according to the definition in the National Water Act (Act 36 of 1998) as: “land which is transitional between terrestrial and aquatic systems, where the water table is usually at or near the surface, or the land is periodically covered with shallow water and which in normal circumstances, supports or would support vegetation typically adapted to life in saturated soil.”

In 2005 DWAF published a wetland delineation procedure in a guideline document titled “A Practical Field Procedure for the Identification and Delineation of Wetlands and Riparian Areas”. These guidelines contain a number of stipulations relating to the protection of wetlands and the undertaking of wetland assessments.

To delineate any wetland, the following criteria is used in accordance with the Department of Water Affairs (DWA): Updated manual for identification and delineation of wetlands and riparian areas, Edition 2 September 2008.

The wetland delineation procedure identifies the outer edge of the temporary zone of the wetland, which marks the boundary between the wetland and adjacent terrestrial areas. This constitutes the part of the wetland that might remain flooded or saturated close to the soil surface for only a few weeks in the year, but long enough to develop anaerobic conditions and determine the nature of the plants growing in the soil.

The guidelines also state that the locating of the outer edge of the temporary zone must make use of four specific indicators namely:

terrain unit indicator

- **soil form indicator**
- **soil wetness indicator**
- **vegetation indicator**

- In addition, the watercourse/wetland and a protective buffer zone beginning from the outer edge of the wetland temporary zone, was designated as sensitive in a sensitivity map. The guidelines stipulate buffers to be delineated around the boundary of a wetland. An adequate protective buffer zone, beginning from the outer edge of the wetland temporary zone, was implemented and designated as sensitive within which no development must be allowed to occur.
- Georeferenced photographs were taken of any Red Data Species Listed-, nationally- or provincially protected plant species, ecologically sensitive/conservationally significant areas as well as significant watercourses and/or wetlands and/or other aquatic ecological features/habitats, if encountered within the assessment area. This was done in order to indicate their specific locations in a Geographic Information System (GIS) mapping format.

The **Present Ecological State (PES)** of all significant aquatic features/habitats identified within the assessment area, was determined and discussed as per the table below.

- The Present Ecological State (PES) refers to the current state or condition of an area in terms of all its characteristics and reflects the change to the area from its reference condition. The value gives an indication of the alterations that have occurred in the ecosystem.

Table 7: Criteria for PES calculations

PES Category	Score	Description
A	0 – 0.9 > 90 - 100%	**Unmodified**, natural and pristine.
B	1 – 1.9 > 80 - 90%	**Largely natural**. A small change in natural habitats and biota may have taken place but the ecosystem functionality has remained essentially unchanged.
C	2 – 3.9 > 60 - 80%	**Moderately modified**. Moderate loss and transformation of natural habitat and biota have occurred, but the basic ecosystem functionality has still remained predominantly unchanged.
D	4 – 5.9 > 40 - 60%	**Largely modified**. A significant loss of natural habitat, biota and subsequent basic ecosystem functionality has occurred.
E	6 – 7.9 > 20 - 40%	**Seriously modified**. The loss of natural habitat, biota and basic ecosystem functionality is extensive.
F	8 – 10 0 - 20%	**Critically/Extremely modified**. Transformation has reached a critical level and the ecosystem has been modified completely with a virtually complete loss of natural habitat and biota. The basic ecosystem functionality has virtually been destroyed and the transformation is irreversible.

The **Ecological Importance and Sensitivity (EIS)** of all significant aquatic features/habitats identified within the assessment area, was determined and discussed as per the table below.

- The Ecological Importance and Sensitivity (EIS) of an area is an expression of its importance to the maintenance of ecological diversity and functioning on local and wider scales. Both abiotic and biotic components of the system are taken into consideration. Sensitivity refers to the system's ability to resist disturbance and its capability to recover from disturbance, once it has occurred.

Table 8: Criteria for EIS calculations

EIS Category	Score	Description

D	≤ 1.0	**Low/Marginal.** Not ecologically important and/or sensitive on any scale. Biodiversity is ubiquitous and not unique or sensitive to habitat modifications.
C	1.1 - 2	**Moderate.** Ecologically important and sensitive on local or possibly provincial scale. Biodiversity is still relatively ubiquitous and not usually sensitive to habitat modifications.
B	2.1 - 3	**High.** Ecologically important and sensitive on provincial or possibly national scale. Biodiversity is relatively unique and may be sensitive to habitat modifications.
A	3.1 - 4	**Very High.** Ecologically important and sensitive on national and possibly international scale. Biodiversity is very unique and sensitive to habitat modifications.

The Recommended Ecological Category (REC) of all significant aquatic features/habitats identified within the assessment area, was determined and discussed as per the table below.

- The Recommended Ecological Category (REC) of an area is an expression of the ecological category, within which it is recommended for a water resource to be managed. In the event of a high EIS value, the management objective should constitute improvement of the water resource condition. In the event of a medium or low EIS value, the management objective should constitute maintenance of the current water resource condition. The PES value however also bears relevance in determining a feasible REC value.

PES Category	**EIS Category**			
	Very High	**High**	**Moderate**	**Low**
A	A - Maintain	A - Maintain	A - Maintain	A - Maintain
B	A - Improve	A/B - Improve	B - Maintain	B - Maintain
C	B - Improve	B/C - Improve	C - Maintain	C - Maintain
D	C - Improve	C/A - Improve	D - Maintain	D - Maintain
E	D - Improve	D - Improve	D - Improve	D - Improve
F	D - Improve	D - Improve	D - Improve	D - Improve

Potential ecological impacts posed by the proposed development to the local ecosystem and ecology, were identified, evaluated, rated and discussed as per the methodology described below. The tables below indicate and explain the methodology and criteria used for the evaluation of the Environmental Risk Ratings as well as the calculation of the final Environmental Significance Ratings of the identified potential ecological impacts. Each identified potential ecological impact is scored for each of the Evaluation Components, as per the table below.

Table 9: Criteria for Environmental Risk Rating calculations

Evaluation Component	Rating Scale and Description/Criteria
Magnitude of Negative or Positive Impact	**10 - Very high**: Bio-physical features and/or ecological functionality/processes may be severely impacted upon. **8 - High**: Bio-physical features and/or ecological functionality/processes may be significantly impacted upon. **6 - Medium**: Bio-physical features and/or ecological functionality/processes may be moderately impacted upon. **4 - Low**: Bio-physical features and/or ecological functionality/processes may be slightly impacted upon. **2 - Very Low**: Bio-physical features and/or ecological functionality/processes may be slightly impacted upon. **0 - Zero**: Bio-physical features and/or ecological functionality/processes will not be impacted upon.
Duration of Negative or Positive Impact	**5 – Permanent**: Impact will continue on a permanent basis. **4 - Long term**: Impact should cease a period (> 40 years) after the operational phase/project life of the activity. **3 - Medium term**: Impact may occur for the period of the operational phase/project life of the activity. **2 - Short term**: Impact may only occur during the construction phase of the activity after which it will cease. **1 - Immediate**: Impact may only occur as a once off during the construction phase of the activity.
Extent of Positive or Negative Impact	**5 - International**: Impact will extend beyond National boundaries. **4 - National**: Impact will extend beyond Provincial boundaries but remain within National boundaries. **3 - Regional**: Impact will extend beyond 5 km of the development footprint but remain within Provincial boundaries. **2 - Local**: Impact will not extend beyond 5 km of the development footprint. **1 - Site-specific**: Impact will only occur on or within 200 m of the development footprint. **0 – No impact.**
Irreplaceability of Natural Resources being impacted upon	**5 – Definite** loss of irreplaceable natural resources. **4 – High** potential for loss of irreplaceable natural resources. **3 – Moderate** potential for loss of irreplaceable natural resources. **2 – Low** potential for loss of irreplaceable natural resources. **1 – Very low** potential for loss of irreplaceable natural resources. **0 – No impact.**
Reversibility of Impact	**5 –** Impact **cannot** be reversed.

	4 – Low potential that impact may be reversed. **3 – Moderate** potential that impact may be reversed. **2 – High** potential that impact may be reversed. **1 –** Impact **will be** reversible. **0 – No impact.**
Probability of Impact Occurrence	**5 - Definite**: Probability of impact occurring is > 95 %. **4 - High**: Probability of impact occurring is > 75 %. **3 - Medium**: Probability of impact occurring is between 25 % - 75 %. **2 - Low**: Probability of impact occurring is between 5 % - 25 %. **1 - Improbable**: Probability of impact occurring is < 5 %.
Cumulative Impact	**High**: Numerous similar historic, present or future development activities in the same geographical area, have taken or are anticipated to take place which may cumulatively contribute and increase the significance of the identified impacts. **Medium**: Few similar historic, present or future development activities in the same geographical area, have taken or are anticipated to take place which may cumulatively contribute and increase the significance of the identified impacts. **Low**: Virtually no similar historic, present or future development activities in the same geographical area, have taken or are anticipated to take place which may cumulatively contribute and increase the significance of the identified impacts. The development is anticipated to be an isolated occurrence and should therefore have a negligible cumulative impact. **None**: No cumulative impact.

Once the Environmental Risk Ratings have been evaluated for each identified potential ecological impact, the Significance Score of each impact is calculated by using the following formula:

- **SS (Significance Score) = (magnitude + duration + extent + irreplaceable + reversibility) x probability.**
- **The maximum Significance Score value is 150.**

The Significance Score is then used to rate the Environmental Significance of each identified potential ecological impact, as per **Table 10** below. The Environmental Significance rating process is completed for all identified potential ecological impacts for the construction- and subsequent operational phases of the proposed development, both before and after implementation of the recommended mitigation measures.

Table 10: Interpretation of Environmental Significance Rating calculation results

Environmental Significance Score	Environmental Significance Rating	Description/Criteria
125 – 150	**Very High**	An impact of very high significance after mitigation will mean that the development may not take place. The

		impact cannot be suitably reduced and mitigated to within acceptable levels.
100 – 124	**High**	An impact of high significance after mitigation should influence a decision about whether or not to proceed with the development. Additional, impact-specific mitigation measures must be implemented if the continuation of the development is to be considered.
75 – 99	**Medium-High**	Additional, impact-specific mitigation measures must be implemented for an impact of medium-high significance if the continuation of the development is to be considered.
50 – 74	**Medium**	An impact of medium significance after mitigation must be adequately managed in accordance with the mitigation measures provided by the specialist.
< 50	**Low**	If any mitigation measures are provided by the specialist for an impact of low significance after mitigation, the impact must be adequately managed in accordance with these measures.
+	**Positive impact**	A positive impact is likely to result in a beneficial consequence/effect and should therefore be viewed as a motivation for the development to proceed.

6. Assessment Area

The proposed construction of Rethuseng Special School is proposed on Remaining Extent of Farm Cromford 690-LR, Blouberg Local Municipality, Capricorn District Municipality, Limpopo (T0LR00000000069000002; S: 23°33'11.82", E: 28°57'23.19") which is owned by the Bakone Ba Matlala a Thaba Tribe. Furthermore, the approximate extent of the study area is 16.5 ha of which 10 ha will be utilised as developable areas with the remaining 6.5 ha set aside as open space areas for future development. The objective of the project is to design and construct a school suitable for 330 boarding learners, maximum of 58 boarding staff and 53 daily staff on site.

Figure 1: Map of the study area (circled in yelllow).

6.1. Climate

Climate Summer rainfall with very dry winters. MAP from about 400 mm in the northwest to about 600 mm where it borders on the foot of mountains to the east and south. Frost fairly infrequent. Mean monthly maximum and minimum temperatures for Polokwane 33.2°C and 0.6°C for October and June, respectively. See also climate diagram for SVcb 23 Polokwane Plateau Bushveld.

6.2. Geology and Soils

Geology & Soils Migmatites and gneisses of the Hout River Gneiss and the Turfloop Granite (both of Randian Erathem) are dominant. Some ultramafic and mafic metavolcanics, quartzite and chlorite schist of the Pietersburg Group (Swazian Erathem) are also found. Soils variable, with freely drained soils with high base status, some dystrophic/mesotrophic, eutrophic plinthic catenas. Glenrosa and Mispah soil forms. Land types mainly Ae, Bd, Ah, Ab, Bc and Fa.

6.3. Vegetation Type and Conservation Status

According to SANBI (2025) the study area is mostly dominated by Central Bushveld Vegetation type of the Fine-Leaved-Savannah Biome, which forms part of the Savannah Biome. This kind of vegetation occurs in the study area that is Flat and gentle undulating plains covering the largest part of Limpopo Province. Vegetation is typically a mosaic of Fine-leaved and Broad-leaved Savanna.

These areas receive summer rainfall varying between 350 and 650 mm per annum. The winters are very dry and light frost occurs occasionally in some areas. Altitudes range from about 800 to 1 400 m.a.s.l. At higher latitudes (e.g. in Gauteng) the upper limit before the Savanna Biome grades into the Grassland Biome is about 1 200 m.a.s.l. (Refer to Figure 2) which is considered “Not protected” as per the 2018 National Biodiversity Assessment.

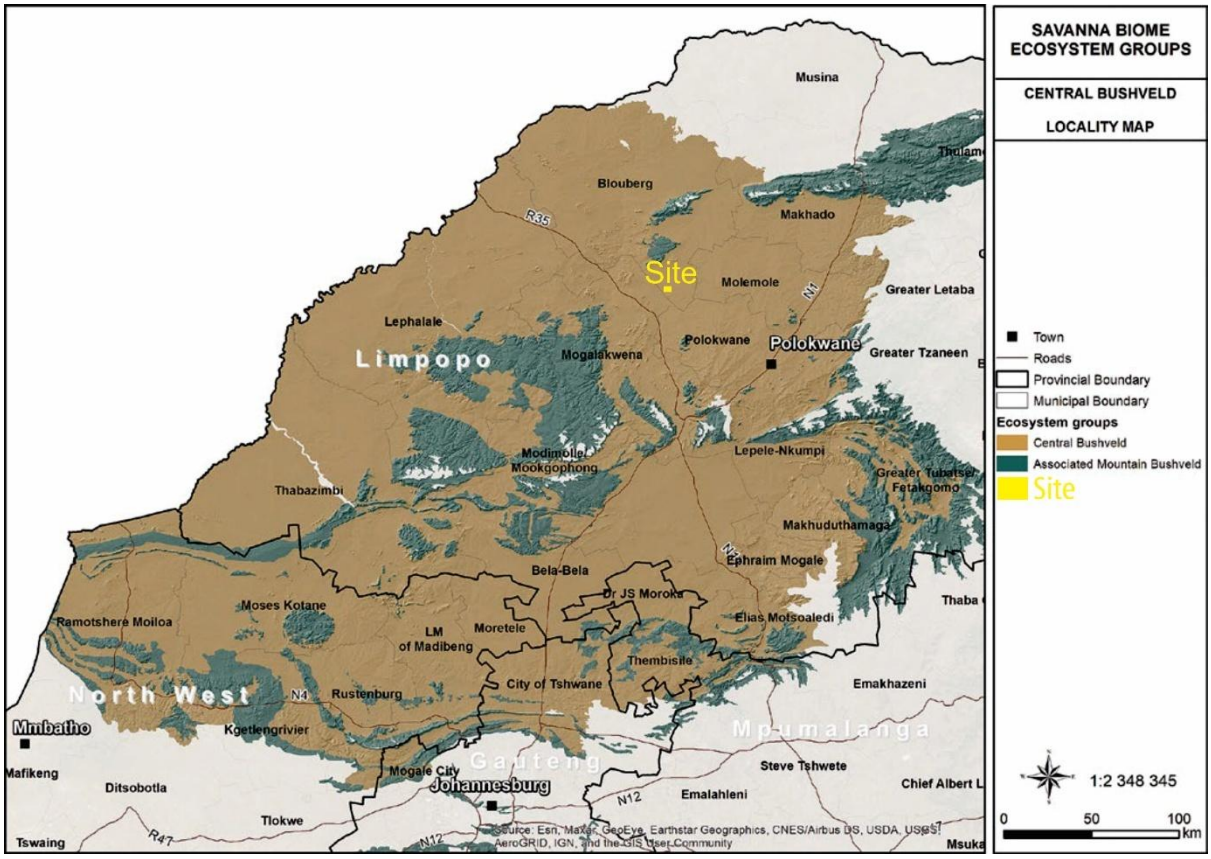

Figure 2: Showing Central Bushveld Vegetation type of the Savannah Biome - Polokwane Plateau Bushveld which considered to be Least Concern and is Poorly Protected (SANBI 2018).

7. Assumptions, Uncertainties and Gaps in Knowledge

Various assumptions need to be made during the assessment process, at the hand of the relevant specialist. It is assumed that:

- all relevant project information provided to the ecological specialist by the EAP, was correct and valid at the time that it was provided.
- the proposed development area as provided by the EAP, is correct and will not be significantly deviated from, as this was the only area assessed.
- strategic level investigations undertaken by the applicant prior to the commencement of the Basic Assessment process, determined that the proposed development area represents a potentially suitable and technically acceptable location.
- the public, local communities, relevant organs of state and surrounding landowners will receive a sufficient reoccurring opportunity to participate and comment on the proposed development during the Basic Assessment process, through the provision of adequately

facilitated public participation interventions and timeframes as stipulated in the NEMA: EIA Regulations, 2014.

- the need and desirability of the proposed development is based on strategic national, provincial and local plans and policies, which reflect the interests of both statutory and public viewpoints.
- the BA process is a project-level framework and the specialists are limited to assessing the anticipated environmental impacts, associated with the construction- and subsequent operational phases of the proposed development.
- it is assumed that strategic level decision making by the relevant authorities will be conducted through cooperative governance principles, with the consideration of environmentally sustainable and responsible development principles underpinning all decision making.

Given that an BA involves prediction, the uncertainty factor forms part of the assessment process. Two types of uncertainty are associated with the BA process, namely process-related and rediction-related.

- Uncertainty of prediction is critical at the data collection phase as observations, recommendations and conclusions are made, solely based on professional specialist opinion. Final certainty will only be obtained upon actual implementation of the proposed development. Adequate research, specialist experience and expertise should however minimise this uncertainty.
- Uncertainty of relevant decision making relates to the interpretation of provided information by relevant authorities during the BA process. Continual two-way communication and coordination between EAP's and relevant authorities should however decrease the uncertainty of subjective interpretation. The importance of widespread/comprehensive consultation towards minimising the risk/possibility of omitting significant information and impacts is further stressed. The use of quantitative impact significance rating formulas (as utilised in this document) can further standardise the objective interpretation of results and limit the occurrence and scale of uncertainty and subjectivity.

• The principle of human nature provides for uncertainties and unpredictability with regards to the socio-economic impacts of the proposed developments and the subsequent public reaction/opinion, which will be received during the Public Participation Process (PPP).

Gaps in knowledge can be attributed to:

- The ecological assessment process was undertaken prior to the availing of certain information, which would only be derived from the final development design and layout. The design layout for the proposed development, had not been finalised yet at the time of the ecological assessment.
- Extensive existing residential, industrial and commercial transformation associated with the township, is evident throughout the local and broader surrounding landscape. The assessment area is therefore completely isolated, from an ecological perspective.
- The potential for future similar developments in the same geographical area, which could lead to further cumulative impacts, cannot be meaningfully anticipated. It is however likely that further similar sewage Rethuseng Special School development and subsequent transformation can take place within the local and broader area, over time. BioAssets CC is an independent ecological specialist company. All information and recommendations as per this report are therefore provided in a fair and unbiased/objective manner and are solely based on qualitative data gathered as well as professional specialist observation and opinion.

8.1. Proposed Development Area Clearance

The proposed development area constitutes a site approximately 16.5ha. The proposed special school will constitute 16.5 ha clearance. The mechanical clearance and excavation associated with the proposed school, will in all probability merely transform the existing surface vegetation of about 10 ha. It is however not anticipated that the development of the proposed school will impact significantly wider. The proposed development will furthermore merely be temporary in nature.

8.2. Aquatic Environment

According to the Environmental Screening Tool Report, the Aquatic Biodiversity Theme of the assessment area is rated as being of ‘low sensitivity’.

8.2.1. Water Catchment and Drainage

Catchment land use: The estimated land cover for the study catchment was derived from the South African National Land Cover (SANLC 2020) dataset, provided by the Department of Forestry, Fisheries and the Environment. The area of interest was divided into four sub-basins, for which the findings are tabulated with the corresponding maps for reference.

Catchment slope: A slope analysis of the catchment was conducted for each Sub Basin for which the findings are tabulated with the corresponding maps for reference. It is noted that the catchment predominately comprises of slopes ranging from 10%-30% and therefore can be classified as a predominantly hilly catchment.

8.2.2. Watercourse Baseline Information

There are no intermittent or perennial watercourses on site of the assessment area. According to the National Freshwater Ecosystem Priority Areas Database (NFEPA, 2011), the portion of the C52B - 3782 Sub Quaternary Reach (SQR) associated with the assessment area, does not fall within any Fish Support Area, -Sanctuary, -Corridor, -Rehabilitation Area or Freshwater Ecosystem Priority Area (FEPA). No populations of conservationally significant threatened fish species have been recorded throughout the assessment area or local downstream region or are expected to specifically utilise the assessment area as refuge or for breeding, foraging and/or persistence purposes.

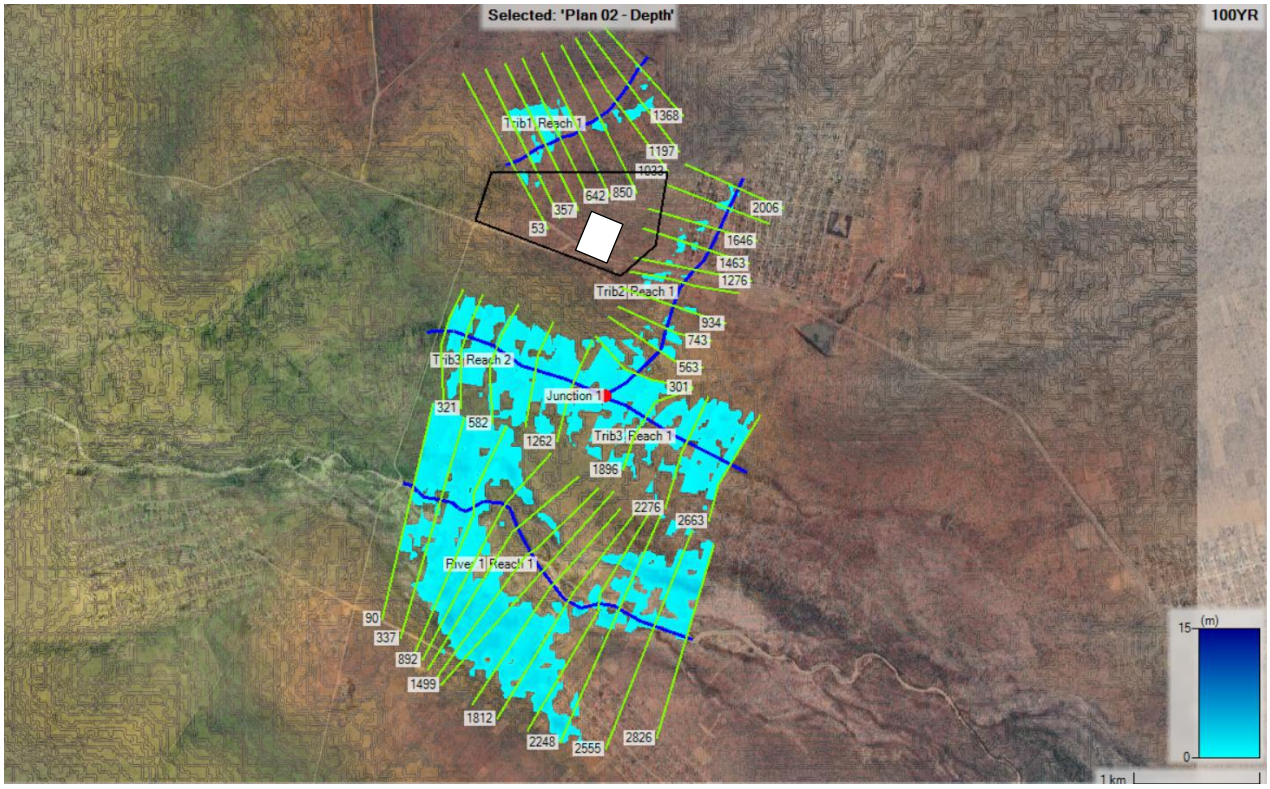

Figure 3 - Water catchment and drainage map illustrating the main watercourses and quaternary surface water catchment- and drainage associated with the assessment area

8.2.3. Watercourses and Wetlands

Preferential water flow path/drainage line

There are no significant perennial watercourses within the vicinity of the assessment area.

It is therefore evident from a hydrological perspective, that the flow path/drainage line merely plays a minor role in the local and broader quaternary surface water catchment- and drainage area, towards the north-west.

The flow path/drainage line is however in a highly degraded and polluted ecological state, mainly as a result of historical and continued upstream domestic waste/garbage dumping and likely raw sewage discharge into the flow path/drainage line along with continued anthropogenic activity and disturbance associated with the township. Evidence of recent burning of sections of the flow path/drainage line is furthermore also visible and it is reasonably assumed that the local area is likely anthropogenically burnt on a regular basis. No ecologically viable aquatic- or semi-aquatic habitat therefore remains along the length of the flow path/drainage line.

No conservationally significant or important avifaunal species/nests or other -faunal species were observed throughout the flow path/drainage line, during the site assessment. Due to the highly degraded and polluted ecological state along with the continued anthropogenic activity and disturbance throughout the area, it is furthermore also highly improbable that any conservationally significant or important faunal or avifaunal species would specifically utilise the flow path/drainage line.

Figure 3: Showing the site with no streams

Present Ecological State (PES), Ecological Importance and Sensitivity (EIS) & Recommended Ecological Category (REC)

Present Ecological State (PES)

The Present Ecological State (PES) of the seasonal preferential water flow path/drainage line is classified as **Class E** as it is seriously modified. The loss of natural habitat, biota and basic ecosystem functionality is extensive.

Ecological Importance and Sensitivity (EIS)

The Ecological Importance and Sensitivity (EIS) of the seasonal preferential water flow path/drainage line is classified as **Class D (low/marginal)** as it is merely viewed as being slightly ecologically important and/or sensitive on local scale. It is consequently merely viewed as being of very low, if any, overall conservational significance/value for habitat preservation in support of the surrounding ecosystem persistence and the continued ecological functionality and -integrity of the local and quaternary surface water catchment- and drainage area.

Reasoning:

There are no drainage line channels on site or at least is low of surface water runoff and drainage towards the south, from rainfall surface run off. It is therefore evident from a hydrological perspective, that the flow path/drainage line merely plays a minor role in the local and broader quaternary surface water catchment- and drainage area, towards the north-west.

It is furthermore also evident from an aquatic faunal biodiversity perspective, that the flow path/drainage line does not form any part of the aquatic ecology of the area. It is consequently not anticipated that the proposed development would pose any significant risk to- or impact on the aquatic faunal or avifaunal communities throughout the local or broader landscape.

Recommended Ecological Category (REC)

The Recommended Ecological Category (REC) of the seasonal preferential water flow path/drainage line is classified as Class D - Improve.

No Red Data Listed-, nationally protected- or provincially protected aquatic plant species or any other aquatic plant species of conservational significance/value, were found to be present throughout the wetland. As stated above and under heading 2, it must however be noted that the seasonal timing of the assessment was not necessarily favourable for successful identification of all plant species individuals.

No conservationally significant or important avifaunal species/nests or other -faunal species were observed throughout the site as there is no wetland, during the site assessment. Due to the moderately to highly degraded and polluted ecological state along with the continued anthropogenic activity and disturbance throughout the area, it is furthermore also highly improbable that any conservationally significant or important faunal or avifaunal species would specifically utilise the wetland.

It is therefore evident from an aquatic faunal biodiversity perspective, that there is no intermittent or perennial rivers on site and tis means the site does not form an important part of the aquatic ecology of the area. It is consequently not anticipated that the proposed development would pose any significant risk to- or impact on the aquatic faunal or avifaunal communities throughout the local or broader landscape.

Landcover	**Catchment Cover Percentages**			
	400 m buffer zone surrounding the wetland	**Inflowing stream buffers**	**Broader catchment surrounding the buffer zone**	**Total catchment extent**

Eroded areas (& heavily degraded lands)	2.89 %	74.26 %	56.21 %	**32.04 %**
Rural settlement	70.18 %	23.36 %	32.10 %	**59.06 %**

Figure 4: Showing the site gentle slope with no erosion

Ecological Importance and Sensitivity (EIS)

Ecological Importance (EI) Summary

WET-EcoServices Assessment

Ecological Importance (EI) Summary

	ECOSYSTEM SERVICE	Present State			
		Supply	Demand	Importance Score	Importance
REGULATING AND SUPPORTING SERVICES	Flood attenuation	1.5	0.5	0.2	Very Low
	Stream flow regulation	1.3	2.0	0.8	Low
	Sediment trapping	2.0	1.1	1.1	Low
	Erosion control	1.3	0.5	0.0	Very Low
	Phosphate assimilation	1.9	0.8	0.8	Very Low
	Nitrate assimilation	1.8	1.0	0.8	Low
	Toxicant assimilation	1.8	1.0	0.8	Low
	Carbon storage	0.9	2.7	0.8	Very Low
	Biodiversity maintenance	0.3	0.0	0.0	Very Low
PROVISIONING SERVICES	Water for human use	0.0	0.7	0.0	Very Low
	Harvestable resources	1.0	0.0	0.0	Very Low
	Food for livestock	0.8	0.7	0.0	Very Low
	Cultivated foods	1.7	0.0	0.2	Very Low
CULTURAL SERVICES	Tourism and Recreation	0.0	0.0	0.0	Very Low
	Education and Research	0.0	0.0	0.0	Very Low
	Cultural and Spiritual	4.0	0.0	2.5	Moderately High

Rethusheng Special School	
	Importance
ECOLOGICAL IMPORTANCE & SENSITIVITY	**1.7**
HYDRO-FUNCTIONAL IMPORTANCE	**0.7**
DIRECT HUMAN BENEFITS	**0.5**
Overall Importance and Sensitivity Score	**1.7**
Overall Importance and Sensitivity Category	**D**

The **Ecological Importance and Sensitivity (EIS)** of any waterbody Assessment Unit is classified as **Class D (low/marginal)** as it is merely viewed as being slightly ecologically important and/or sensitive on local scale. It is consequently merely viewed as being of very low, if any, overall conservational significance/value for habitat preservation in support of the surrounding ecosystem persistence and the continued ecological functionality and -integrity of the local and quaternary surface water catchment- and drainage area.

Based on the outcomes and results of the site assessment, the specialist is therefore in agreement with the 'low' Aquatic Biodiversity Theme sensitivity rating of the assessment area.

Reasoning:

The importance of ecological services provided when doing the waterbody assessment is very low, relative to that supplied by other similar waterbodies. Although there area is sorounded by intermittent streams, the site itself have no streams and is disturbed and degraded ecological state, mainly as a result of the substantial landcover transformation catchment area and associated historical and continued anthropogenic inputs/impacts.

It is evident from an aquatic faunal biodiversity perspective, that the wetland does not form an important part of the aquatic ecology of the area. It is consequently not anticipated that the proposed development would pose any significant risk to- or impact on the aquatic faunal or avifaunal communities throughout the local or broader landscape

8.3. Terrestrial Environment

According to the Environmental Screening Tool Report, the Terrestrial Biodiversity Theme of the assessment area is rated as being of 'Very high sensitivity'.

8.3.1. Current Existing Vegetation and Site Description

The site is recovering from agricultural activities. The area is therefore virtually completely transformed and devoid of any natural surface vegetation. Merely small, fragmented patches of grass still remain along the length of the site. Such patches are however in a highly disturbed and degraded ecological state and are mainly dominated by the robust/resilient Increaser 2 type grass species *panicum maximum, Aristida spp*. This overwhelming dominance of hardy Increaser 2 type grass species along with the complete absence of desired palatable Decreaser type climax grass species, confirms the disturbed and degraded ecological state of the eastern half of the proposed Rethuseng Special School. Many villagers collect firewood from the site and a lot of overgrazing has taken place and is continuing.

No Red Data Listed-, nationally protected- or provincially protected plant species or any other plant species of conservational significance/value, were found- or are expected to be present along the eastern half of the proposed Rethuseng Special School. As stated above and under heading 2, it must however be noted that the seasonal timing of the assessment was not necessarily favourable for successful identification of all plant species individuals.

Due to the continued anthropogenic activity and disturbance associated with the village, the site of the proposed school therefore not in any way representative/reminiscent of the relevant Central Central Bushveld - Polokwane Plateau Bushveldvelf vegetation type (svb23), which completely negates the conservational significance of the area. It is consequently not anticipated that the proposed development of the assessment area would pose any significant risk to achieving and maintaining national and/or provincial conservation- and persistence targets of the area or to the continued ecological functionality and -integrity of the local surrounding landscape.

Based on the outcomes and results of the site assessment, the specialist is therefore in agreement with the 'low' Terrestrial Biodiversity Theme sensitivity rating of the assessment area.

Figure 5: Images illustrating example of the virtually completely transformed, highly disturbed

8.4. Plant Species List for the Assessment Area

According to the Environmental Screening Tool Report, the Plant Species Biodiversity Theme of the assessment area is rated as being of 'low sensitivity'. Based on the outcomes and results of the site assessment, the specialist is in agreement with this rating.

Table 5: Plant species list for the assessment area

Graminoids	**Forbs & Succulents**	**Woody Shrubs/Trees**
Panicum maximum,	*Oxygonum dregeanum subsp. canescens*	*Vachellia. karroo,*
Pogonarthria squarrosa,	*Ledebouria crispa.*	*Vachellia. tortilis subsp. heteracantha,*
Sporobolus africanus;	-	*Ormocarpum kirkii,*
Felicia mossamedensis,	-	*Ziziphus mucronata;*
Hermbstaedtia odorata,	-	*Schlerocrya birrea*

-		

8.5. Fauna and Avifauna

According to the Environmental Screening Tool Report, the Animal Species Biodiversity Theme of the assessment area is rated as being of 'low sensitivity'. Site visit confirms this rating).

No individuals of this species were observed throughout the assessment area, during the site assessment. The assessment area does not fall within any Important Bird Areas (IBA) as per the latest IBA map obtained from the Birdlife SA website (https://www.birdlife.org.za/what-we-do/important-bird-and-biodiversity-areas/media-and-resources/#1553597171790-6f83422a-a731). No conservationally significant or important avifaunal species/nests or other -faunal species were observed throughout the assessment area, during the site assessment. Only common local resident bird species were found to be present.

Due to the moderately to highly degraded ecological state along with the continued anthropogenic activity and disturbance associated with the village, it is also highly improbable that the assessment area would specifically be utilised by any conservationally significant or important faunal or avifaunal species as refuge or for breeding, foraging and/or persistence purposes. The mobility of faunal/avifaunal species allows for individuals to simply leave an area where disturbance is taking place and relocate to surrounding similar, adequate areas.

It is therefore evident from a faunal biodiversity perspective, that the assessment area does not form an important part of the ecology of the area. It is consequently not anticipated that the proposed development would pose any significant risk to- or impact on the faunal or avifaunal communities throughout the local or broader surrounding landscape.

Based on the outcomes and results of the site assessment, the specialist is therefore in agreement with the 'low' Animal Species Biodiversity Theme sensitivity rating of the assessment area.

8.6. Site Ecological Importance (SEI)

The Site Ecological Importance (SEI) of the assessment area is classified as **Very Low** as it is not viewed as being ecologically important and/or sensitive on any scale. Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

The assessment area is not viewed as being of any overall conservational significance/value for habitat preservation or continued ecological functionality and -integrity persistence in support of the surrounding ecosystem, broader vegetation type or any faunal and avifaunal habitats.

Reasoning:

Due to the continued anthropogenic activity and disturbance associated with the Mamehlabe village, the eastern half of the proposed Rethuseng Special School is therefore not in any way representative/reminiscent of the relevant Central Bushveld vegetation type , which completely negates the conservational significance of the area. It is consequently not anticipated that the proposed development of the assessment area would pose any significant risk to achieving and maintaining national and/or provincial conservation- and persistence targets of the area or to the continued ecological functionality and -integrity of the local surrounding landscape.

Based on the outcomes and results of the site assessment, the specialist is therefore in agreement with the 'low' Plant Species Biodiversity Theme sensitivity rating of the assessment area.

It is evident from a faunal biodiversity perspective, that the assessment area does not form an important part of the ecology of the area. It is consequently not anticipated that the proposed development would pose any significant risk to- or impact on the faunal or avifaunal communities throughout the local or broader surrounding landscape.

It is recommended that the proposed Rethuseng Special School trench as far as practicably possible/feasible not be excavated inside the identified preferential water flow path/drainage line, but rather along its edge.

Disturbed areas within and immediately surrounding the proposed Rethuseng Special School, particularly the sections associated with the flow path/drainage line and wetland, must be adequately rehabilitated concurrently with the construction processes. The remainder of the proposed Rethuseng Special School must be adequately rehabilitated as soon as practicably possible after construction. A Rehabilitation Management Plan must be compiled by a suitably qualified and experienced ecologist.

It is recommended that the construction of the proposed Rethuseng Special School be conducted during the winter season if practicably possible/feasible. The flow of the flow path/drainage line and wetland active streamflow channel will be significantly reduced during this time, which should ease the excavation activities and result in reduced impeding of- and impact on flow.

Implement an adequate Alien Invasive Species Management and Prevention Plan during the construction- and subsequent operational phases of the proposed development. Such a Management Plan must be compiled by a suitably qualified and experienced ecologist.

Adequate sewage leakage detection and prevention systems must be implemented for the management and maintenance of the established Rethuseng Special School, in order to detect any potential leakages and subsequent contamination of surface and/or groundwater resources.

The established Rethuseng Special School must be inspected on a regular basis and adequately maintained to prevent any leakages.

If any sewage leakages or overflows of t

8.7. Main Mitigation Recommendations

The following main ecological impact management and mitigation measures are recommended for the proposed development:

It is recommended that the proposed Rethuseng Special School trench as far as practicably possible/feasible not be excavated inside the identified preferential water flow path/drainage line, but rather along its edge.

Disturbed areas within and immediately surrounding the proposed Rethuseng Special School, particularly the sections associated with the flow path/drainage line and wetland, must be adequately rehabilitated concurrently with the construction processes. The remainder of the proposed Rethuseng Special School must be adequately rehabilitated as soon as practicably possible after construction. A Rehabilitation Management Plan must be compiled by a suitably qualified and experienced ecologist.

It is recommended that the construction of the proposed Rethuseng Special School be conducted during the winter season if practicably possible/feasible. The flow of the flow path/drainage line and wetland active streamflow channel will be significantly reduced during this time, which should ease the excavation activities and result in reduced impeding of- and impact on flow.

Implement an adequate Alien Invasive Species Management and Prevention Plan during the construction- and subsequent operational phases of the proposed development. Such a Management Plan must be compiled by a suitably qualified and experienced ecologist.

Adequate sewage leakage detection and prevention systems must be implemented for the management and maintenance of the established Rethuseng Special School, in order to detect any potential leakages and subsequent contamination of surface and/or groundwater resources.

The established Rethuseng Special School must be inspected on a regular basis and adequately maintained to prevent any leakages.

If any sewage leakages or overflows of the established Rethuseng Special School occur, the competent authority must immediately be notified and the necessary steps must be followed by

the applicant to locate and remediate the source of contamination, as soon as practicably possible/feasible.

A Water Use License Application (WULA) must be submitted to the Department of Water and Sanitation for the proposed crossing of the flow path/drainage line and wetland, in accordance with the National Water Act (Act 36 of 1998).

8.8. Ecological Site Sensitivity Map

The site sensitivity map below (see A3 sized map in the Appendices) illustrates the preferential water flow path/drainage line, western boundary of the channelled valley-bottom wetland and its associated active streamflow channel.

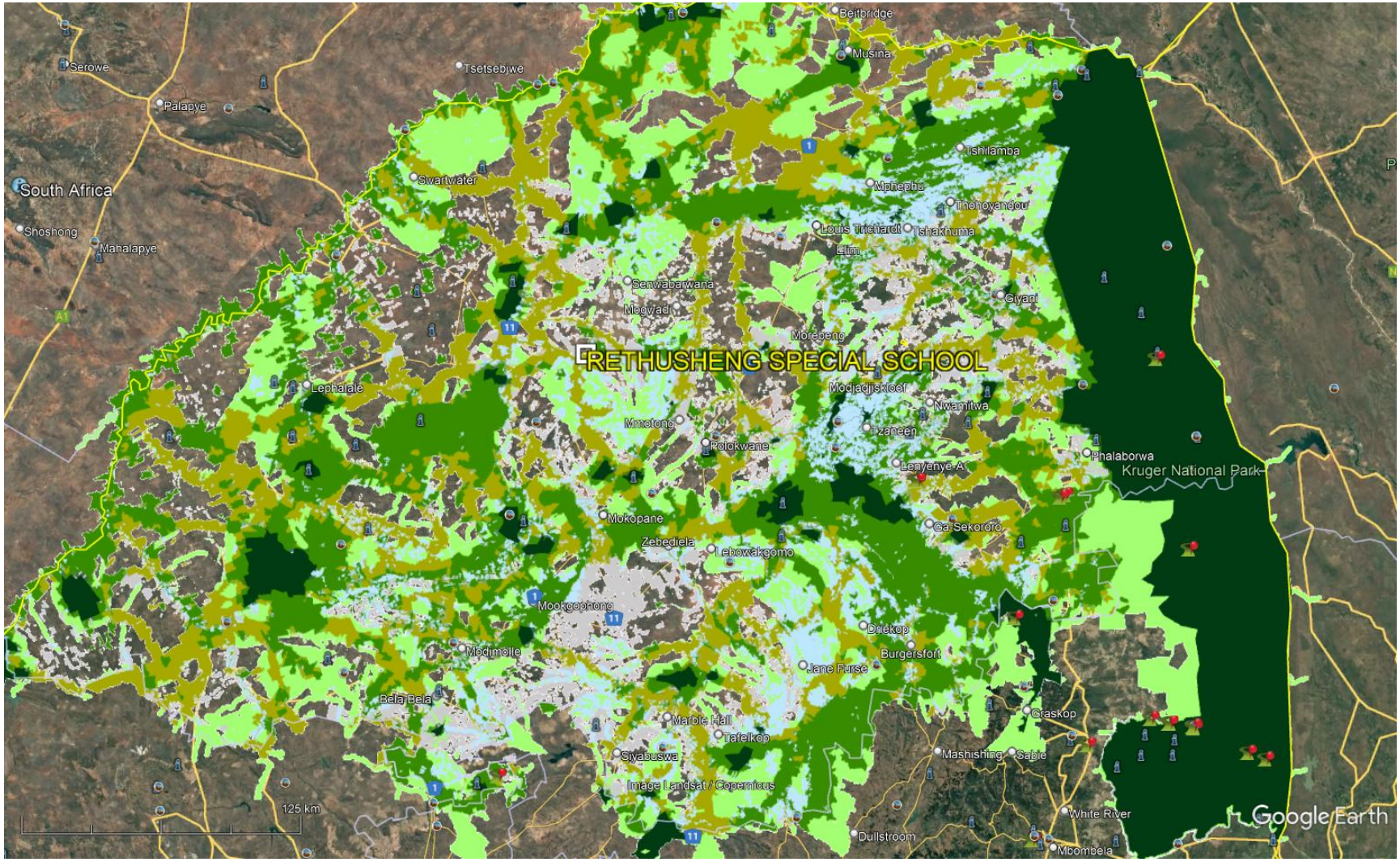

Figure 6: Ecological Sensivity map

9. Ecological Impact Assessment

The following section identifies the potential ecological impacts (both positive and negative), which the proposed development will have on the surrounding environment.

Once the potential ecological impacts are identified, they are assessed by rating their Environmental Risk after which the final Environmental Significance is calculated and rated for each identified ecological impact.

The same Environmental Risk rating process is then followed for each ecological impact to determine the Environmental Significance, if the recommended mitigation measures were to be implemented.

The objective of this section is therefore firstly to identify all the potential ecological impacts associated with the proposed development and secondly to determine the significance of the impacts and how effective the recommended mitigation measures will be able to reduce their significance. The potential ecological impacts which are still rated as highly significant, even after implementation of mitigations, can then be identified in order to specifically focus on implementation of effective management strategies for them.

9.1. Construction Phase

Transformation of vegetation within the assessment area associated with the Central Free State Grassland vegetation type (Gh 6)

According to SANBI (2006-2019), the entire assessment area falls within the Central Free State Grassland vegetation type (Gh 6), which mainly consists of undulating plains supporting short grassland dominated by *panicum maximum* in natural conditions while *Eragrostis curvula*), Aristida congesta, Cymbopogon caesius become more dominant in degraded areas.

The proposed development area constitutes a bulk sewage Rethuseng Special School of approximately 3.8 km in length. The proposed Rethuseng Special School will merely constitute a narrow linear clearance and excavation section of approximately ≤ 1 m in width. The mechanical clearance and excavation associated with the proposed Rethuseng Special School, will in all probability merely transform the existing surface vegetation within this narrow linear section. It is however not anticipated that the development of the proposed Rethuseng Special School will impact significantly wider. As the proposed Rethuseng Special School will mostly be placed underground, the surface disturbance and impact associated with the proposed development will furthermore merely be temporary in nature.

Destruction of-/damage to Red Data Listed, nationally- and/or provincially protected species individuals/habitats and consequent fragmentation of habitat connectivity, associated with the assessment area

- The proposed development area constitutes 16.5ha. The proposed school will constitute 10ha with 6.5ha set aside for future development. The mechanical clearance and excavation associated with the proposed school site, will in all probability merely transform the existing surface vegetation within this narrow linear section. It is however not anticipated that the development of the proposed school will impact significantly wider. As the proposed school will mostly be placed underground, the surface disturbance and impact associated with the proposed development will furthermore merely be temporary in nature.
- No Red Data Listed-, nationally protected- or provincially protected plant species or any other plant species of conservational significance/value, were found- or are expected to be present along the proposed school site. As stated above and under heading 2, it must however be noted that the seasonal timing of the assessment was not necessarily favourable for successful identification of all plant species individuals.
- Based on the outcomes and results of the site assessment, the specialist is therefore in agreement with the 'low' Plant Species Biodiversity Theme sensitivity rating of the assessment area.
- According to the Environmental Screening Tool Report, the Animal Species Biodiversity Theme of the assessment area is rated as being of 'medium sensitivity' for the potential presence of the Globally Near Threatened Red Listed mammalian species *Hydrictis maculicollis* (Spotted-necked otter).
- No individuals of this species were observed throughout the assessment area, during the site assessment. Due to the lack of suitable perennial aquatic habitat/watercourses throughout the assessment area required for this species, the realistic chance/possibility of this species potentially occurring throughout the assessment area is highly improbable.
- The assessment area does not fall within any Important Bird Areas (IBA) as per the latest IBA map obtained from the Birdlife SA website (https://www.birdlife.org.za/what-we-do/important-bird-and-biodiversity-areas/media-and-resources/#1553597171790-6f83422a-a731). No conservationally significant or important avifaunal species/nests or other -faunal species were observed throughout the assessment area, during the site assessment. Only common local resident bird species were found to be present.
- Due to the moderately to highly degraded and polluted ecological state along with the continued anthropogenic activity and disturbance associated with the township, it is also highly improbable that the assessment area would specifically be utilised by any conservationally significant or

important faunal or avifaunal species as refuge or for breeding, foraging and/or persistence purposes. The mobility of faunal/avifaunal species allows for individuals to simply leave an area where disturbance is taking place and relocate to surrounding similar, adequate areas.

- It is therefore evident from a faunal biodiversity perspective, that the assessment area does not form an important part of the ecology of the area. It is consequently not anticipated that the proposed development would pose any significant risk to- or impact on the faunal or avifaunal communities throughout the local or broader surrounding landscape.

- Based on the outcomes and results of the site assessment, the specialist is therefore not in agreement with the 'medium' Animal Species Biodiversity Theme sensitivity rating of the assessment area, but rather concludes that the assessment area is rated as 'low sensitivity'.
- The significance of this potential impact will be **zero**.
- Mitigation measures to reduce impacts are recommended under heading 9.4.

Terrestrial and aquatic alien invasive species establishment

- The edges and instream bed of the flow path/drainage line are mainly dominated by the legally declared alien invasive grass species *Pennisetum clandestinum* (Category 1b in wetlands/watercourses). The legally declared alien invasive forb species *Datura stramonium* and *Cirsium vulgare* (both Category 1b) are furthermore moderately scattered along the length of the flow path/drainage line. No other significant alien invasive species establishments were found to be present throughout the assessment area.
- The proposed development area constitutes a bulk sewage school site of approximately 3.8 km in length. The proposed school site will merely constitute a narrow linear clearance and excavation section of approximately ≤ 1 m in width. The mechanical clearance and excavation associated with the proposed school site, will in all probability merely transform the existing surface vegetation within this narrow linear section. It is however not anticipated that the development of the proposed school site will impact significantly wider. As the proposed school site will mostly be placed underground, the surface disturbance and impact associated with the proposed development will furthermore merely be temporary in nature.
- The assessment area could therefore potentially be prone to slight alien invasive species establishment, due to surface disturbance and vegetation clearance caused by construction activities. The presence of the flow path/drainage line and wetland could further also potentially act as significant transport/distribution vectors for numerous terrestrial and aquatic alien invasive species into the broader region.

- The significance of this potential impact will be **low** prior to- and after implementation of recommended mitigation measures.
- Mitigation measures to reduce impacts are recommended under heading 9.4.

- **Surface material erosion**
- The proposed development area constitutes a bulk sewage school site of approximately 3.8 km in length. The proposed school site will merely constitute a narrow linear clearance and excavation section of approximately ≤ 1 m in width. The mechanical clearance and excavation associated with the proposed school site, will in all probability merely transform the existing surface vegetation within this narrow linear section. It is however not anticipated that the development of the proposed school site will impact significantly wider. As the proposed school site will mostly be placed underground, the surface disturbance and impact associated with the proposed development will furthermore merely be temporary in nature.
- The significance of this potential impact will be **zero.**
- Mitigation measures to reduce impacts are recommended under heading 9.4.
- **Dust generation and emissions**
- The proposed development area constitutes a bulk sewage school site of approximately 3.8 km in length. The proposed school site will merely constitute a narrow linear clearance and excavation section of approximately ≤ 1 m in width. The mechanical clearance and excavation associated with the proposed school site, will in all probability merely transform the existing surface vegetation within this narrow linear section. It is however not anticipated that the development of the proposed school site will impact significantly wider. As the proposed school site will mostly be placed underground, the surface disturbance and impact associated with the proposed development will furthermore merely be temporary in nature.
- The construction activities associated with the proposed development, could potentially result in slight fugitive dust emissions, due to vegetation clearance and excavation as well as movement of machinery and equipment. Generated dust could potentially spread into- and contaminate the identified flow path/drainage line and wetland.
- The significance of this potential impact will be **low** prior to- and after implementation of recommended mitigation measures.

9.2. Operational Phase

- No significant potential long-term ecological impacts were identified for the construction phase of the proposed development. Once the construction phase of the proposed development has been completed, the subsequent operational phase should also not result in any significant additional

potential ecological impacts, apart from the low-level potential long-term ecological impacts, as discussed under heading 9.1.

- Along with the potential long-term ecological impacts as discussed under heading 9.1, the following additional potential ecological impacts could also occur during the operational phase. These impacts could continue throughout the entire operational phase and lifespan of the established Rethuseng Special School:
- **Continued impeding of the flow regimes of the preferential water flow path/drainage line and wetland, within the associated local and broader quaternary surface water catchment- and drainage area**
- The established Rethuseng Special school could potentially continuously impede on the natural surface water flow through the flow path/drainage line and wetland, within the associated local and broader quaternary surface water catchment- and drainage area, due to artificial obstruction of flow during rainfall events.
- The significance of this potential impact will be **low** prior to- and after implementation of recommended mitigation measures.
- Mitigation measures to reduce impacts are recommended under heading 9.4.

9.3. Cumulative Impacts

- The assessment area scored a very low Site Ecological Importance (SEI) value and is not viewed as being of any overall conservational significance/value for habitat preservation or continued ecological functionality and -integrity persistence in support of the surrounding ecosystem, broader vegetation type or any faunal and avifaunal habitats (see heading 8.6).
- The preferential water flow path/drainage line and wetland both scored low/marginal Ecological Importance and Sensitivity (EIS) values and are consequently merely viewed as being of very low, if any, overall conservational significance/value for habitat preservation in support of the surrounding ecosystem persistence and the continued ecological functionality and -integrity of the local and quaternary surface water catchment- and drainage area (see heading 8.2.3).
- It is consequently not anticipated that the proposed development would pose any significant risk to achieving and maintaining national and/or provincial conservation- and persistence targets of the area or to the continued ecological functionality and -integrity of the local surrounding landscape.
- It is furthermore also not anticipated that the proposed development would pose any significant risk to- or impact on the faunal or avifaunal communities throughout the local or broader surrounding landscape.

- No significant potential long

- The potential long-term ecological impacts identified for the proposed development, could potentially merely add low cumulative impact to the existing negative impacts caused by the extensive existing residential, industrial and commercial transformation associated with the township, throughout the local and broader surrounding landscape.
- It is however the opinion of the specialist, by application of the NEMA Mitigation Hierarchy, that all the identified potential cumulative ecological impacts associated with the proposed development, can be suitably reduced and mitigated to within acceptable residual levels, by implementation of the recommended mitigation measures. It is therefore not anticipated that the proposed development will add any significant residual cumulative ecological impacts to the surrounding environment, if all recommended mitigation measures as per this ecological report are adequately implemented and managed, for both the construction- and subsequent operational phases of the proposed development.
- **It is the opinion of the specialist that the proposed development of the assessment area should be considered by the competent authority for Environmental Authorisation and approval. All recommended mitigation measures as per this ecological report must however be adequately implemented and managed for both the construction- and subsequent operational phases of the proposed development. All necessary authorisations, permits and licenses must also be obtained prior to the commencement of any construction.**

9.4. Risk Ratings of Potential Ecological Impacts

- The following section provides the Environmental Risk as well as the Environmental Significance Ratings for the potential ecological impacts associated with the proposed development, both before and after implementation of the recommended mitigation measures.

9.4.1. Construction Phase

- **Table 11: Environmental Risk and Significance Ratings**

•	•	•
•	•	•
	Assessment area	
Identified Environmental Impact	**Transformation of vegetation within the assessment area associated with the Central Bushveld polokwane plateau vegetation type**	

Magnitude of Negative or Positive Impact	Very low (2)	-
Duration of Negative or Positive Impact	Long term (4)	-
Extent of Positive or Negative Impact	Local (2)	-
Irreplaceability of Natural Resources being impacted upon	Low (2)	-
Reversibility of Impact	Low (4)	-
Probability of Impact Occurrence	Low (2)	-
Cumulative Impact Rating prior to mitigation	Low	-
Environmental Significance Score and Rating prior to mitigation	Low (28)	-
Mitigation Measures to be implemented	The proposed development footprint area must be kept as small as practicably possible to reduce the surface impact on surrounding vegetation and no unnecessary/unauthorised footprint expansion into the surrounding undeveloped landscape may take place. No site construction basecamps may be established within the surrounding undeveloped landscape. Adequately cordon off the proposed development construction footprint area and ensure that no construction activities, machinery or equipment operate or impact within the surrounding undeveloped landscape outside the cordoned off area. Adequate operational procedures for construction machinery and equipment must be developed in order to strictly govern and restrict movement of machinery only within the proposed development construction footprint area and to ensure environmentally responsible construction practices and activities. Existing roads and farm tracks in close proximity to the proposed development construction footprint area, must be used during the construction phase. No new temporary roads	

	or tracks may be constructed or implemented through the surrounding undeveloped landscape. Disturbed areas within and immediately surrounding the proposed school site, particularly the sections associated with the flow path/drainage line and wetland, must be adequately rehabilitated concurrently with the construction processes. The remainder of the proposed school site must be adequately rehabilitated as soon as practicably possible after construction. A Rehabilitation Management Plan must be compiled by a suitably qualified and experienced ecologist.

10. Summary and Conclusion

Proposed Development Area Clearance

The proposed development area constitutes Rethuseng Special School 16.5ha. It is however not anticipated that the development of the proposed scchool will impact significantly wider.

Vegetation Type and Conservation Status

According to SANBI (2006-2019), the entire assessment area falls within the Central Bushveld - Polokwane Plateau vegetation type (svb23), It occurs on moderately undulating plains with a short open tree layer and with a well-developed grass layer to grass plains with occasional trees at higher altitudes. Hills and low mountains of Mamabolo Mountain Bushveld are embedded within this unit. Dense concentration of rural human settlements is found. (SANBI, 2006-2019). This vegetation type is classified as Least Concerned (SANBI, 2006-2019).

The entire assessment area and local surrounding landscape is categorised as Degraded land,

Aquatic Environment

According to the Environmental Screening Tool Report, the Aquatic Biodiversity Theme of the assessment area is rated as being of 'low sensitivity'.

Water Catchment and Drainage

The assessment area falls within the Upper Orange Water Management Area (WMA 13) and the associated C52B quaternary surface water catchment- and drainage area. It is furthermore situated in the C52B - 3782 Sub Quaternary Reach (SQR), within the Highveld Ecoregion (11). The assessment area and surrounding landscape generally slopes slightly to moderately, in a north-westerly direction.

Watercourse Baseline Information

There are no significant perennial watercourses within the vicinity of the assessment area. According to the National Freshwater Ecosystem Priority Areas Database (NFEPA, 2011), the portion of the C52B - 3782 Sub Quaternary Reach (SQR) associated with the assessment area, does not fall within any Fish Support Area, -Sanctuary, -Corridor, -Rehabilitation Area or Freshwater Ecosystem Priority Area (FEPA). No populations of conservationally significant threatened fish

species have been recorded throughout the assessment area or local downstream region or are expected to specifically utilise the assessment area as refuge or for breeding, foraging and/or persistence purposes.

Watercourses and Wetlands

Preferential water flow path/drainage line

There are no significant perennial watercourses within the vicinity of the assessment area. The central section of the proposed school site runs along the edge of a small second-order seasonal preferential water flow path/drainage line, which flows through the extensive existing residential landscape associated with the township. This flow path/drainage line channels low to moderate volumes of surface water runoff and drainage towards the west, from a local upstream surface water catchment area to the east.

It is therefore evident from a hydrological perspective, that the flow path/drainage line merely plays a minor role in the local and broader quaternary surface water catchment- and drainage area, towards the north-west.

The flow path/drainage line is however in a highly degraded and polluted ecological state, mainly as a result of historical and continued upstream domestic waste/garbage dumping and likely raw sewage discharge into the flow path/drainage line along with continued anthropogenic activity and disturbance associated with the township.

It is recommended that the development be approved, all the mitigation measures referred to in this report be incorporated into an Environmental Management Programme.

- To meet national, provincial and district conservation targets, conservation of a substantial portion of the remaining natural areas in the Municipality is required. It is therefore recommended that a Strategic level approach (SEA) to cumulative impacts will be more suitable to identify and minimize potential cumulative impacts on the VECs in the municipal area.
- It is further recommended that should the development be approved, all the mitigation measures referred to in this report be incorporated into an Environmental Management Programme if not already addressed on the Generic Environmental Management Report for the EGI process and stipulated as part of the requirements for environmental authorisation.

- It is recommended that considering the large-scale developments planned for the municipality, any proposed land-use change and transformation prior to authorisation be viewed within the context of cumulative impacts on VECs, and not on individual project-based impacts alone.
- To compensate for the loss of VECs in the municipal area, the identification of potential opportunities for municipal level mitigation (i.e., biodiversity offsets), should be investigated by municipal/district/provincial authorities responsible for strategic planning, together

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