

TERRESTRIAL BIODIVERSITY IMPACT ASSESSMENT

PROPOSED SWIMMING POOL, RECREATIONAL FACILITIES AND ASSOCIATED
INFRASTRUCTURE AT DIE STROOM PICNIC SITE IN THE BONTEBOK NATIONAL
PARK ON ERF RE/5338, SWELLENDAM



Report Author: Mr Nicolaas Willem Hanekom

A handwritten signature in black ink that reads "N.W. Hanekom".

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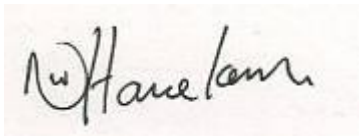
MAY 2025

DECLARATION OF THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I **Nicolaas Willem Hanekom**, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - ~~am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted);~~
- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.



Nicolaas Hanekom

Pri.Sci.Nat (Ecology) 400274/11

Signature of the EAP/ Specialist:

14 May 2025

Date:

Enviro-EAP (Pty) Ltd

Name of company (if applicable):

COMPLIANCE WITH THE DEPARTMENT OF ENVIRONMENTAL AFFAIRS SCREENING TOOL (GOVERNMENT NOTICE NO. 648, GOVERNMENT GAZETTE 45421: 10 MAY 2019)

Department of Environmental Affairs screening Tool (Government Notice No. 648, GOVERNMENT GAZETTE 45421: 10 MAY 2019)	ADDRESSED IN SPECIALIST REPORT
Contact details and curriculum vitae of the specialist including SACNASP registration number and field of expertise and their curriculum vitae	Page 1 and Appendix A
A signed statement of independence by the specialist	Page 2 of report
Duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment	Section 1.8
A description of the methodology used to undertake the impact assessment and site inspection, including equipment and modelling used where relevant	Section 1.5
A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations	Section 1.6
Areas not suitable for development, to be avoided during construction and operation (where relevant)	Section 5
Additional environmental impacts expected from the proposed development based on those already evident on the site and a discussion on the cumulative impacts	Section 6
Impact management actions and impact management outcomes proposed by the specialist for inclusion in the EMPr	Section 6
A motivation where the development footprint identified as per section 2.3 in this Table were not considered stating reasons why these were not being considered	Section 1 and 7
A reasoned opinion, based on the findings of the specialist assessment, regarding the acceptability or not of the development and if the development should receive approval or not, and any conditions to which the statement is subjected	Section 7

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1. INTRODUCTION AND METHODOLOGY

This report presents the findings of the Terrestrial Biodiversity Impact Assessment that was prepared by Nicolaas Hanekom

1.1. Background & Competency

Nicolaas Hanekom is a registered Professional Natural Scientist in the ecological science field with the South African Council for Natural Scientific Professions (“SACNASP”), (Ecology field) and a qualified registered Environmental Assessment Practitioner (“EAP”) who holds a Masters Technologiae, Nature Conservation (“Vegetation Ecology and Biodiversity Assessment”) degree from the Cape Peninsula University of Technology (Refer to Appendix A, CV). Nicolaas Hanekom is suitably qualified SACNASP registered specialist.

1.2. Conditions Relating to this Report

The findings, results, observations, conclusions and recommendations given in this report are based on the author’s best scientific and professional knowledge as well as available information and knowledge of the area. Nicolaas Hanekom reserves the right to modify aspects of the report including the recommendations if and when new information may become available from on-going research or further work in this field, pertaining to this assessment.

This report may not be altered or added to without the prior written consent of the author. This restraint also refers to electronic copies of this report which are supplied as sub portion of other reports, including main reports. Similarly, any recommendations, statements, or conclusions drawn from or based on this report must specifically refer to this report. If such comments form part of a main report for this investigation, the report must be included in its entirety as an appendix or separate section to the main report.

1.3. Scope and Objectives

The assessments entailed both a literature review of the region, as well as on site evaluations, during which specific primary data will be collected and evaluated. In addition, the identification of key ecological features will be undertaken allowing for the interpretation of the prevailing habitat form and associated processes.

All data collected in the field and during the literature review will be evaluated and interpreted in order to provide an understanding of the nature of the prevailing environment at a landscape and habitat level. In addition, specific evaluation of data relating to habitat form and structure will be undertaken, aiding in the identification of bio-physical anomalies within the prevailing environment. Such variance may be considered to be indicative of differing habitat forms, which under consideration, may be of higher order ecological value in relation of the prevailing environment.

The protocol¹ provides the criteria for the reporting of requirements for the assessment and reporting of impacts on terrestrial biodiversity for activities requiring environmental authorisation.

1 Published in Government Notice No. 648 GOVERNMENT GAZETTE 4542110 MAY

1.4. Terms of Reference

Prior to beginning the assessment, the current use of the land and the potential environmental sensitivity of the site as identified by the national web based environmental screening tool must be confirmed by undertaking an Initial Site Sensitivity Verification. The Initial Site Sensitivity Verification must be undertaken by an environmental assessment practitioner or a registered specialist with expertise in the relevant environmental theme being considered. The Initial Site Sensitivity Verification must be undertaken through the use of:

- (a) a desk top analysis, using satellite imagery;
- (b) a preliminary on-site inspection to;
- (c) any other available and relevant information.

The outcome of the Initial Site Sensitivity Verification must be recorded in the form of a report that:

- (a) confirms or disputes the current use of the land and the environmental sensitivity as identified by the screening tool, such as new developments or infrastructure, the change in vegetation cover or status etc.;
- (b) contains a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity; and
- (c) is submitted together with the relevant assessment report prepared in accordance with the requirements of the Environmental Impact Assessment Regulations.

The site sensitivity verification report was completed by the environmental assessment practitioner and was included in the Scoping and Environmental Impact Assessment reports.

The outcome of the site sensitivity verification report concerning terrestrial biodiversity sensitivity of proposed development site and surrounds can be summarised as below:

The Department of Environmental Affairs screening report from the national web based environmental screening tool reported a “Very High sensitivity for terrestrial biodiversity theme”. Map 1 depicts the property on which the “Die Stroom” picnic site development activities are proposed falls within Very High Terrestrial Biodiversity Sensitivity areas (refer to Map 1 below). Indigenous vegetation in a good condition as part of Swellendam Silcrete Fynbos classified as Endangered are present on the development site and surrounds except for existing roads and parking areas which have already been cleared of indigenous vegetation. This development is also located within the Bontebok National Park hence an Terrestrial Biodiversity Impact Assessment was required to be conducted.

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

- A description of the ecological drivers/processes of the system and how the proposed development will impact these;

- Ecological functioning and ecological processes (e.g. fire, migration, pollination, etc.) that operate within the proposed development site;
- The ecological corridors that the development would impede including migration and movement of flora and fauna;
- The description of any significant landscape features (including rare or important flora/faunal associations, presence of Strategic Water Source Areas (SWSAs) or Freshwater Ecosystem Priority Areas (FEPA) sub-catchments;
- The description of the terrestrial biodiversity and ecosystems on the proposed development site must include:
 - Main vegetation types;
 - Threatened ecosystems, including Listed Ecosystems as well as locally important habitat types identified;
 - Ecological connectivity, habitat fragmentation, ecological processes and fine-scale habitats; and
 - Species, distribution, important habitats (e.g. feeding grounds, nesting sites, etc.) and movement patterns identified.

The assessment must identify any alternative development footprints within the preferred development site which would be of a “low” sensitivity as identified by the national web based environmental screening tool and verified through the Initial Site Sensitivity Verification. The Terrestrial Biodiversity Impact Assessment must be based on the results of a site inspection undertaken on the preferred development site and must identify:

The assessment report must describe Terrestrial Critical Biodiversity Areas (CBAs), including:

- The reasons why an area has been identified as a CBA;
- An indication of whether or not the development is consistent with maintaining the CBA in a natural or near natural state or in achieving the goal of rehabilitation;
- The impact on species composition and structure of vegetation with an indication of the extent of clearing activities;
- The impact on ecosystem threat status;
- The impact on explicit subtypes in the vegetation;
- The impact on overall species and ecosystem diversity of the site; and
- The impact on populations of species of special concern in the CBA.

The assessment report must describe Terrestrial Ecological Support Areas, including:

- The impact on the ecological processes that operate within or across the site;
- The extent the development will impact on the functionality of the ESA; and
- Loss of ecological connectivity (on site, and in relation to the broader landscape) due to the degradation and severing of ecological corridors or introducing barriers that impede migration and movement of flora and fauna.

The assessment report must describe Protected Areas as defined by the National Environmental Management: Protected Areas Act, 2004 including an opinion on whether the proposed development aligns with the objectives/purpose of the Protected Area and the zoning as per the Protected Area Management Plan.

The assessment report must describe Priority Areas for Protected Area Expansion, including the way in which the development will compromise or contribute to the expansion of the protected area network.

The assessment report must describe Strategic Water Source Areas (SWSA) including:

- The impact(s) on the terrestrial habitat of a Strategic Water Source Area, and
- The impacts of the development on the SWSA water quality and quantity (e.g. describing potential increased runoff leading to increased sediment load in water courses).

The assessment report must describe Freshwater Ecosystem Priority Area (FEPA) sub catchments, including the impacts of the development on habitat condition and/or species in the FEPA sub catchment, including National wetland map 5.

The assessment report must describe Indigenous Forests, including:

- Impact on the ecological integrity of the forest;
- Extent of natural or near natural indigenous forest area lost.

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

- Contact details and curriculum vitae of the specialist including SACNASP registration number and field of expertise and their curriculum vitae;
- A signed statement of independence by the specialist;
- Duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;
- A description of the methodology used to undertake the impact assessment and site inspection, including equipment and modelling used where relevant;
- A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations;
- Areas not suitable for development, to be avoided during construction and operation (where relevant);
- Additional environmental impacts expected from the proposed development based on those already evident on the site and a discussion on the cumulative impacts;
- Impact management actions and impact management outcomes proposed by the specialist for inclusion in the EMPr;
- A motivation why any alternative development footprints within the preferred development site which would be of a “low” sensitivity as identified by the national web based environmental screening tool were not considered stating reasons why these were not being not considered; and
- A reasoned opinion, based on the findings of the specialist assessment, regarding the acceptability or not of the development and if the development should receive approval or not, and any conditions to which the statement is subjected.

1.5. Approach and Methodology

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

- Sites of geomorphological or topographic variance were identified and subjected to an evaluation of species present within transects established across the selected site.
- Species were identified and collated.
- Additional random sample points were selected from other sites surrounding the proposed impacted areas for comparative purposes.

- Any additional species of significance, not identified within the sample sites were also noted.

The ideal period for the assessment of terrestrial habitat within this region is between August and end October months in terms of main flowering period for indigenous plant species. The sampling and analysis of the specific site took place on 16 January 2019, 17 August 2022 and 26 March 2025 therefore the surveys provide suitable data and results to present an informed decision on the terrestrial biodiversity impacts.

All data was collated and subjected to evaluation using methods in order to:

- Give consideration to the overall structure of habitat within the subject site.
- Identify any habitat anomalies that may be identified in such analysis.
- Allow for the interpretation of such data in order to prioritise and evaluate habitat form and structure within the study area.

1.6. Assumptions and limitations

The assessment was undertaken using a comprehensive sampling method in the optimal season and as a result of this there is no limitations or assumptions.

1.7. Source of Information

This assessment was undertaken utilising:

- 1:50 000 topographic mapping sourced from the Surveyor General's office;
- Aerial imagery sourced from Google Earth.
- Aerial imagery sourced from ESRI and Cape Farm Mapper.
- Vegetation types and their conservation status was extracted from the South African National Vegetation Map (2018).
- Information on plant and animal species recorded for the Quarter Degree Squares (QDS) was extracted from the SABIF/SIBIS database hosted by SANBI.
- The IUCN conservation status of the species in the list was also extracted from the database and is based on the Threatened Species Programme, Red List of South African Plants (2011).
- Threatened Ecosystem data was extracted from the National List of Threatened Ecosystems 2016.
- Freshwater and wetland information was extracted from the National Freshwater Ecosystem Priority Areas assessment, NFEPA (Nel et al. 2011) and National Wetlands Map.
- Important catchments and protected areas expansion areas were extracted from the National Protected Areas Expansion Strategy 2008 (NPAES).
- CapeNature. 2024. 2023 Western Cape Biodiversity Spatial Plan and Guidelines Overview V2.0. Unpublished Report.
- Conducting site visits

In addition, use was made of the following data:

- Wetland and riparian habitat Geographic Information System (GIS) data sourced from the National Freshwater Ecological Priority Area Programme of South African National Biodiversity Institute (SANBI);
- Species lists and distribution maps provided by Bontebok National Park
- SANBI veld types data; and

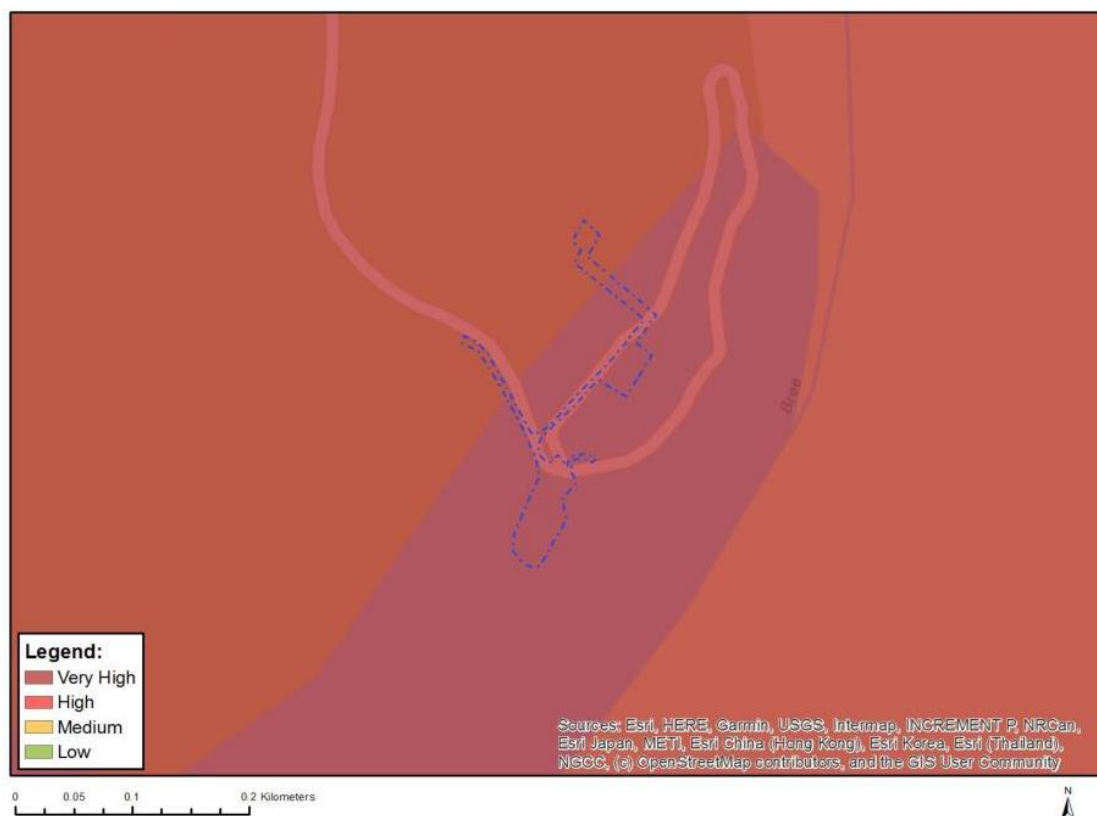
- Literature as referenced

1.8. Site Visit

The ideal period for the assessment of terrestrial habitat within this region is between August and end October months in terms of main flowering period for indigenous plant species. The sampling and analysis of the specific site took place on 16 January 2019, 17 August 2022 and 26 March 2025 therefore the surveys provides suitable data and results to present an informed decision on the terrestrial biodiversity impacts. During the site visits, the different biodiversity features, habitat, vegetation and landscape units present were identified and recorded in the field. Walk-through-surveys were conducted of representative habitats and areas of interest and all plant and animal species observed were recorded (if present). Searches for listed and protected plant species at the site were conducted and the location of all listed plant species observed was recorded (if present). Active searches for reptiles and amphibians were also conducted within habitats likely to harbour or be important for such species. The presence of sensitive habitats such as wetlands, pans or dunes and unique edaphic environments, such as rocky outcrops or quartz patches, were noted in the field if present and recorded and mapped using satellite imagery of the site.

1.9. Sensitivity Mapping and Assessment

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	Bontebok National Park
Very High	Endangered ecosystem_Swellendam Silcrete Fynbos

Figure 1: PAIO map relevant to plant species as per the environmental screen tool report.

Evaluation of Site Ecological Importance (SEI) of habitat and SCC

Habitat Species /	Conservation Importance (CI)	Functional Integrity (FI)	Receptor Resilience	SEI
Swellendam Silcrete Fynbos(EN)	Very high The condition of the vegetation outside of existing disturbance	Very high The condition of the vegetation outside of existing disturbance footprints is in a good condition. The Bontebok National	High The condition of the vegetation outside of existing disturbance	High. Only for the non disturbed small area. The rest of the site has a low sensitivity.

	<p>footprints is in a good condition. The Bontebok National Park Management Plan (2013 – 2023) refers to a day visitor facility and picnic area in the concept development plan for development within the timeframes of the plan and is included in the associated map (SANParks 2013). The location is within the low intensity leisure zone. The development proposal can therefore be considered to be aligned to the management plan at a broad scale.</p>	<p>Park Management Plan (2013 – 2023) refers to a day visitor facility and picnic area in the concept development plan for development within the timeframes of the plan and is included in the associated map (SANParks 2013). The location is within the low intensity leisure zone. The development proposal can therefore be considered to be aligned to the management plan at a broad scale.</p>	<p>footprints is in a good condition. The Bontebok National Park Management Plan (2013 – 2023) refers to a day visitor facility and picnic area in the concept development plan for development within the timeframes of the plan and is included in the associated map (SANParks 2013). The location is within the low intensity leisure zone. The development proposal can therefore be considered to be aligned to the management plan at a broad scale.</p>	
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2. APPLICABLE LEGISLATION AND PERMIT REQUIREMENTS

The proposed development within the study site is considered to elicit a requirement for possible compliance with the following legislation applicable to this assessment.

- The National Environmental Management: Biodiversity Act (Act 10 of 2004)
- The National Water Act (Act 36 of 1998)
- The National Forest Act (Act 84 of 1998)
- Invasive species are controlled by the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) - Alien and Invasive Species (AIS) Regulations which became law on 1 October 2014

The potential applicability of the abovementioned acts to the subject site is provided below:

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

This Act serves to control the disturbance and land utilisation within certain habitats, as well as the planting and control of certain exotic species. The proposed development, taking place in the identified environment, may not necessitate any particular application for a change in land use from a terrestrial biodiversity and ecological perspective. However, the effective disturbance and removal of species identified above, as well as possible other species (i.e. Threatened or Protected Species (TOPS) species), will require specific permission from the applicable authorities. In addition, the planting and management of exotic plant species on site, if and where required, will be governed by the Alien and Invasive Species (AIS) regulations, which were gazetted in 2014. These regulations compel landowners to manage exotic weeds on land under their jurisdiction and control.

One plant species of conservation concern (“SCC”) were recorded on the specific proposed development site to be impacted upon during the time of the surveys and animal species of conservation concern such as Bontebok has been previously recorded within the vicinity of Die Stroom Picnic site, the indigenous vegetation type occurring on the site and surrounds is listed as Endangered Swellendam Silcrete Fynbos according to the NEMBA: National list of ecosystems that are threatened and in need of protection (as amended 18/11/2022) and the development area is also located within the Bontebok National Park which is home to animal and bird species of conservation concern as well as several recorded plant species of conservation concern.

The National Water Act (Act 36 of 1998)

The National Water Act controls activities in and around water resources, as well as the general management of water resources, including abstraction of groundwater and disposal of water. Authorisation for activities impacting on the land other than the current landuse, up to 500 m from a defined (water source) wetland system and 100m from a defined water sources (river) will require an application for a Water Use authorisation from the Department of Water and Sanitation. A Water Use authorisation will be required in respect of the proposed activities under Section 21 (c) and (i), of the Act, because the proposed developments is located within 100m of the Breeriver tributary and will include not only new recreational and infrastructure development, but also a swimming pool and new ablution facilities with an additional soakaway to be constructed adjacent to the existing soak away on site.

The National Forest Act (Act 84 of 1998)

The National Forest Act (Act 84 of 1998) governs the removal, disturbance, cutting or damage and destruction of identified “protected trees”. No listed species were encountered or recorded on site and an application for the “clearing of a *natural forest*”, as defined within the Act, will not be required on the site in question.

Invasive species are controlled by the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) - Alien and Invasive Species (AIS) Regulations which became law on 1 October 2014.

No significant alien vegetation encroachment was recorded on the proposed development site nor its immediate surrounds. Park management does however have an active alien vegetation management plan already in place therefore all listed alien and invasive species are cleared and managed in accordance with the relevant acts and regulations.

National Environmental Management: Protected Areas Act (No.57 of 2003)

The surveyed site is located within a the Bontebok National Park also a Grade II World Heritage Site.

3. DESCRIPTION OF PROJECT ASPECTS RELEVANT TO TERRESTRIAL BIODIVERSITY FEATURES

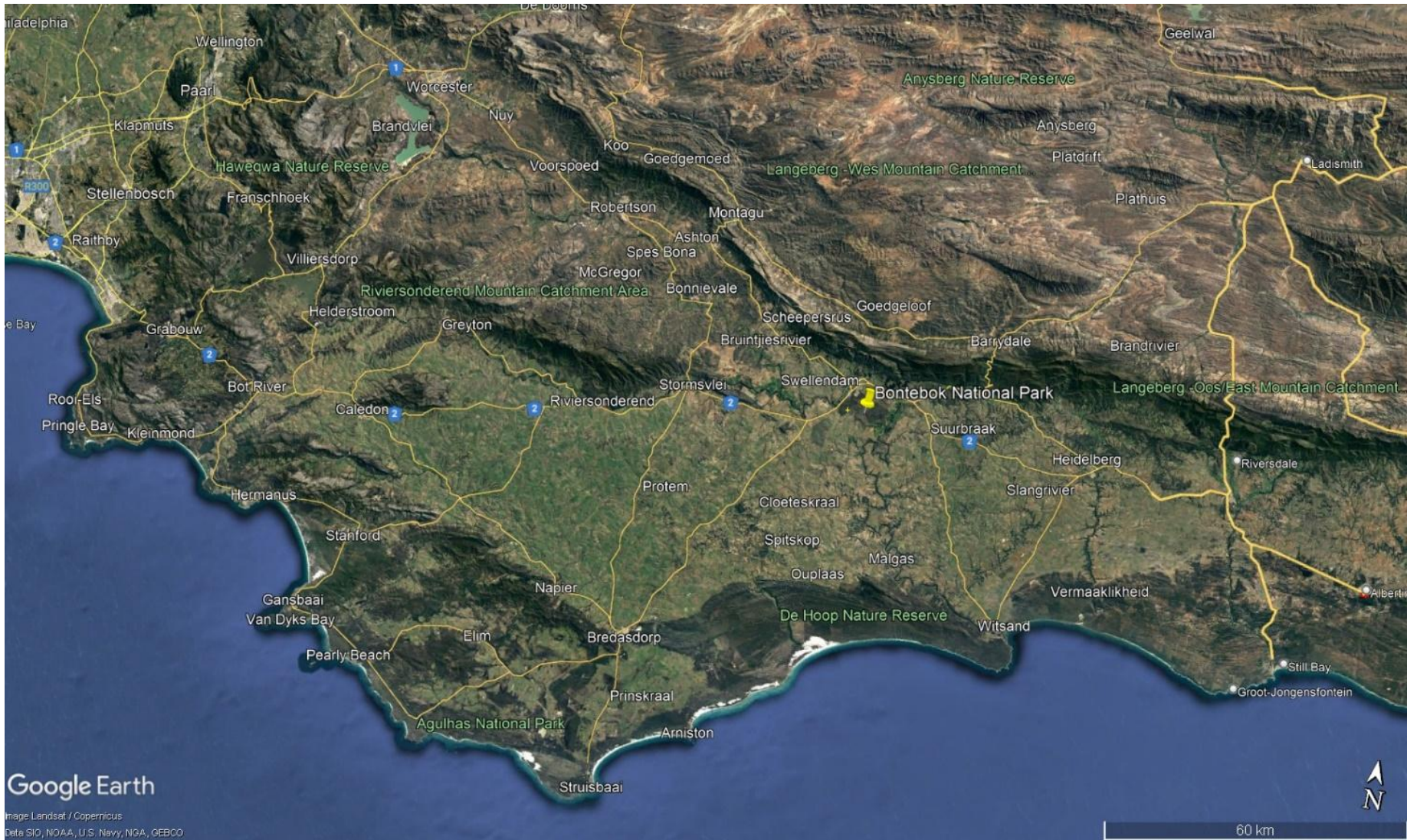
The proposed swimming pool, recreational facilities and associated infrastructure at Die Stroom Picnic Site in the Bontebok National Park, Swellendam will include the following:

- Pool Backwash tank slab = 15m² for 5000liter JoJo
- Septic tank and Pump chamber = 40m²
- Pool pump room = 40m²
- Ablutions/Shower/Change Area = 105m²
- Swimming Pool = 315m²
- Terrace less Pool = 1115m²
- Fence = 210m long and 1.5m high
- Physically Disabled Ramp =80m²
- Parking = 240m²
- Underground electrical cable = 110m long (Area measured in sewer trench calculation)
- Sewer line /Soak-away = 260m long (Area = 390m²)
- Pool back-wash and soak-away = 260m long (Area measured in sewer trench calculation)
- Water supply line = 25m long (Area 25m²) (Balance of area measured in sewer trench calculation)
- Soak-away = 150m² (15m x 10m)
- 2 x Biofilters = 64m² (4m x 8m each)

The construction footprint will be ± 0.44ha and the final development footprint as described above will be ± 0.28ha which includes the permanent clearance of ±0.2ha of indigenous vegetation.

Die Stroom picnic is an historical picnic site next to the Breerivier that's been used by the local community for a number of years. As per the agreement between the Municipality and SANParks, the local community would still have access to Die Stroom for recreational purposes. Subsequent to the proclamation of the Consumer Protection Act (CPA), SANParks Risk Management deemed the Breede River to be unsafe for various reasons, including water quality, clarity, depth and hazardous rubble found on the river bed, the lack of lifeguards on duty and possible attacks by Zambezi (bull) sharks, which have been documented as dwellers of the Breede River. SANParks has therefore cited "swim at own risk" for the afore-mentioned reasons at the relevant picnic site. As the Breede River is traditionally utilised by the local communities for swimming, SANParks would like to provide visitors with a safe swimming environment. The proposed development will offer day visitors an enclosed swimming pool with dedicated ablutions including male and female shower facilities and toilets. The proposed development will also ensure privacy to Die Stroom Function Venue charted to visitors at an extra cost to visitors.

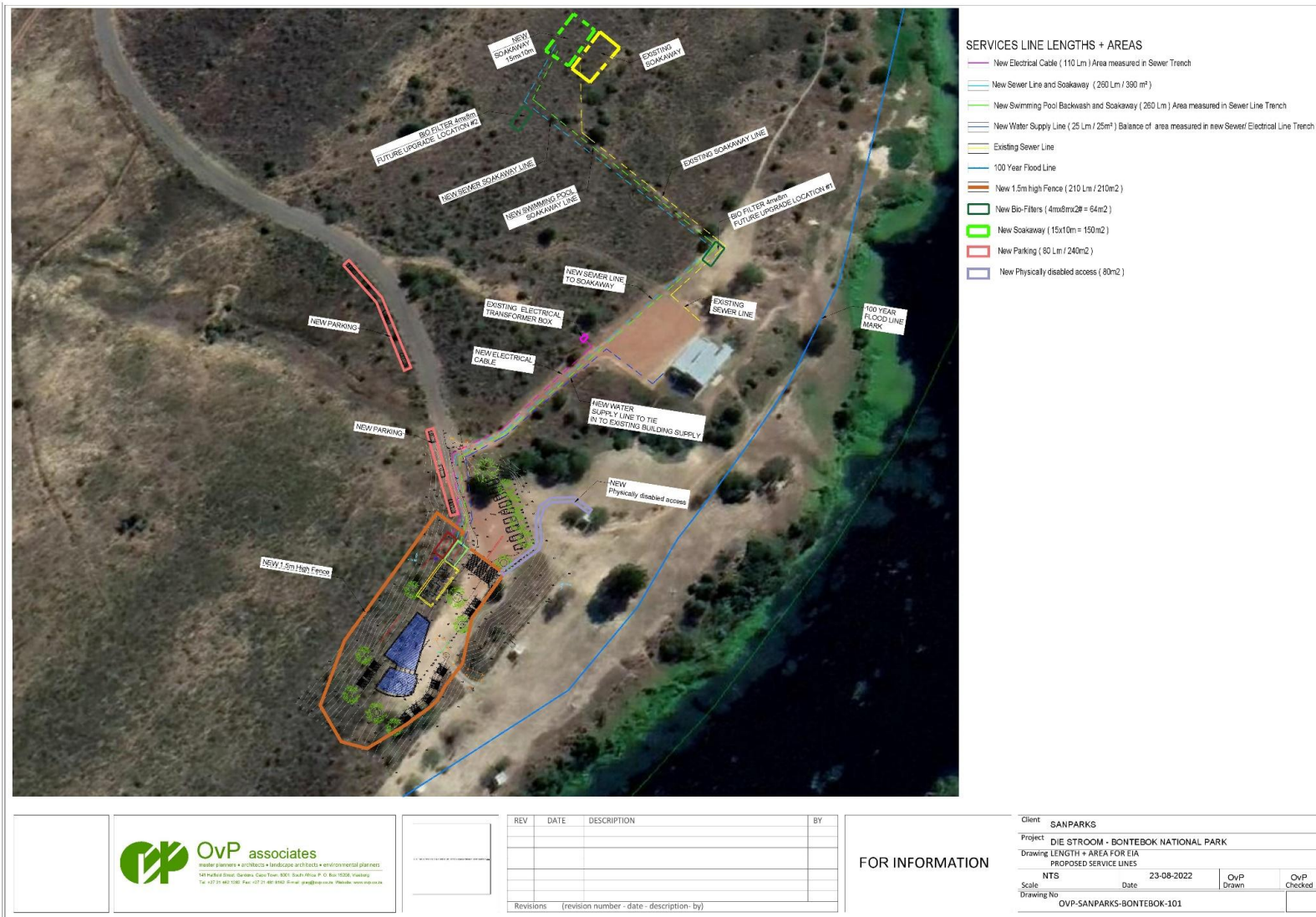
Refer to the locality and development maps below.



Map 2: Locality map for Bontebok National Park at Swellendam in the Western Cape.



Map 3: Locality map for Die Stroom Picnic site in the Bontebok National Park, Swellendam.



Map 4: Layout map for developments proposed at Die Stroom Picnic Site in Bontebok National Park, Swellendam.

4. DESCRIPTION OF THE AFFECTED ENVIRONMENT

4.1. *Locality*

Die Stroom picnic site is an historical picnic site next to the Breerivier tributary within the Bontebok National Park. The park itself lies adjacent to the town of Swellendam in the Western Cape and the main entrance is located on your lefthand side just outside of Swellendam along the N2 towards Cape Town.

4.2. *Topography*

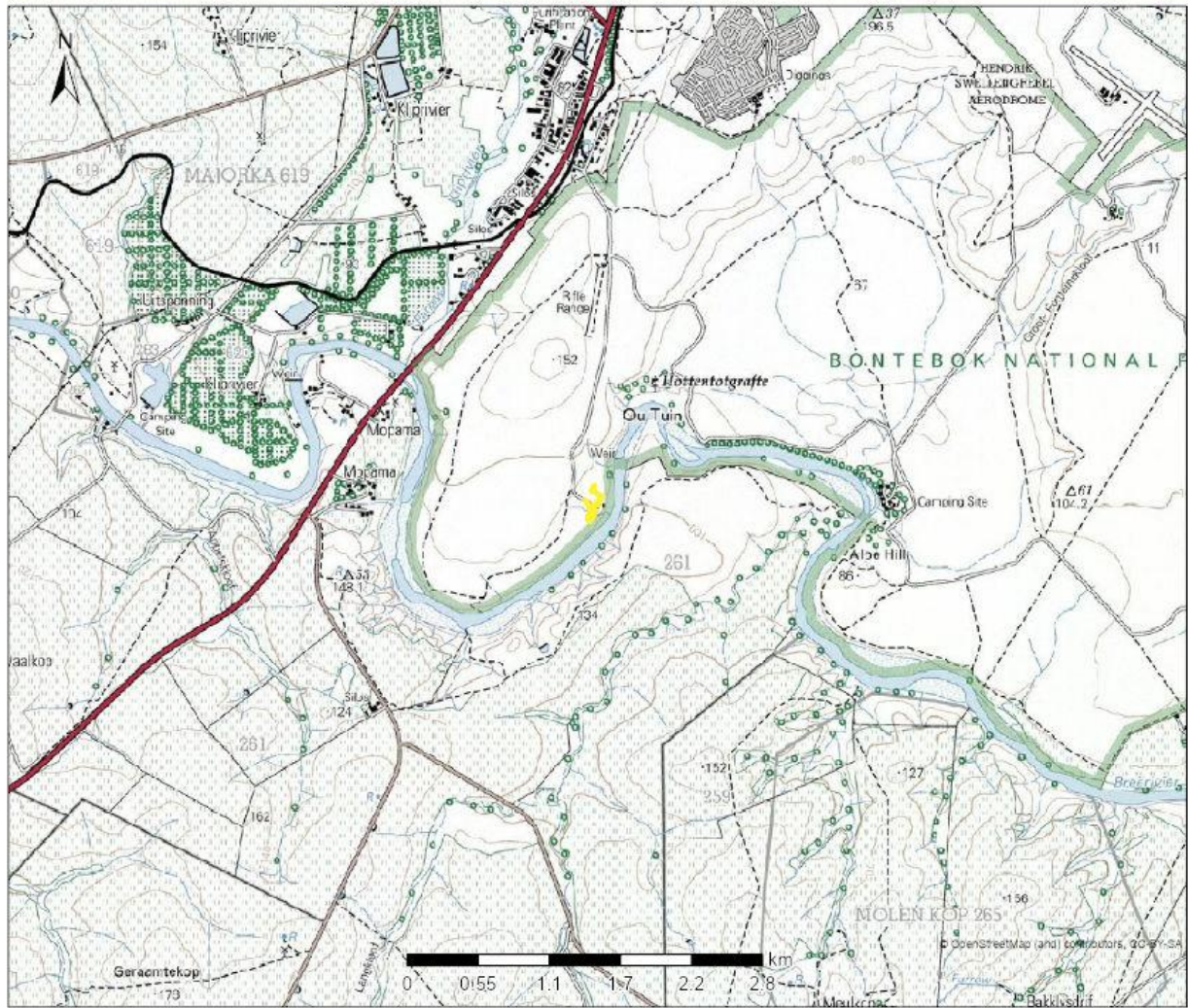
The topography of the overall proposed development site slopes from northwest to southeast towards the Breerivier tributary, with an elevation of between 67m to 55m above mean sea level.

4.3. *Geology and Soils*

Soil – Glenrosa and/or Mispah forms (other soils may occur), lime rare or absent in upland soils but generally present in low-lying soils

Geology – Shale, siltstone and subordinate sandstone of the Bokkeveld and Witteberg Groups, occasionally covered by various surficial deposits

Source: Soils & Geology (ENPAT – Cape Farm Mapper 20/08/2022)



Legend

Map Center: Lon: 20°25'48.8"E
 Lat: 34°4'35.3"S
 Scale: 1:50,000
 Date created: 2024/16/02



Map 5: 1:50 000 Topographical map of proposed developments at Die Stroom picnic site in the Bontebok National Park.

5m Contour Map



Legend

5m Contours

Map Center: Lon: 20°25'52.6"E
Lat: 34°4'34"S

Scale: 1:6,303

Date created: 2024/30/01



Western Cape
Government
FOR YOU

Map 6: 5m Contour map of proposed developments at Die Stroom picnic site in the Bontebok National Park.

4.4. Description of The Ecological Drivers/Processes, Functioning, Ecological Corridors that the Development Would Impede Including Migration and Movement of Flora and Fauna, and Description of any Significant Landscape Features

The proposed developments at Die Stroom picnic site in the Bontebok National Park is located as far as possible on already transformed areas and along existing infrastructure routes as part of the existing picnic site and will lead to the permanent clearance of only ± 0.2 ha of indigenous vegetation. No dynamic ecological processes are expected to be impacted upon or disrupted by the proposed development. The functioning of the non-perennial drainage line running through the picnic site and the Breeriver tributary will continue as is, managing all potential negative impacts on these features and the surrounds in accordance with a construction management plan and the existing park management plan. The area is already managed by the park and used by the public as a community picnic site, hence following the construction completion of the proposed developments the ecological processes will continue as per current status quo.

4.5. Description of the Terrestrial Biodiversity Ecosystems

4.5.1. Main Vegetation Types

The indigenous vegetation type occurring on the site and surrounds is listed as Endangered Swellendam Silcrete Fynbos according to the NEMBA (10/2004): National list of ecosystems that are threatened and in need of protection (as amended 18/11/2022).

4.5.2. Threatened Ecosystems, Including Listed Ecosystems

The indigenous vegetation type occurring on the site and surrounds is listed as Endangered Swellendam Silcrete Fynbos according to the NEMBA (10/2004): National list of ecosystems that are threatened and in need of protection (as amended 18/11/2022).

4.5.3. Ecological Connectivity, Habitat Fragmentation, Ecological Processes and Fine-Scale Habitats

The proposed developments at Die Stroom picnic site in the Bontebok National Park is located as far as possible on already transformed areas and along existing infrastructure routes as part of the existing picnic site and will lead to the permanent clearance of only ± 0.2 ha of indigenous vegetation. No ecological connectivity will be lost and no habitat fragmentation or significant detrimental impacts on any fine-scale habitats are expected during the construction and operation of the proposed developments at the picnic site as the functioning of the non-perennial drainage line running through the picnic site and the Breeriver tributary will continue as is, managing all potential negative impacts on these features and the surrounds in accordance with a construction management plan and the existing park management plan. The area is already managed by the park and used by the public as a community picnic site, hence following the construction completion of the

proposed developments the ecological processes will continue as per current status quo.

4.5.4. Species, Distribution, Important Habitats and Sensitivity Rating

Flora Characteristics, Description and Distribution

The indigenous vegetation type occurring on the site and surrounds is listed as Endangered Swellendam Silcrete Fynbos according to the NEMBA (10/2004): National list of ecosystems that are threatened and in need of protection (as amended 18/11/2022). The remaining indigenous vegetation on the site which has not been disturbed due to previous developments such as roads, parking and pipelines associated with the existing picnic site is in a good condition in terms of diversity and very limited alien vegetation encroachments. This vegetation type is the main indigenous vegetation type represented in the park.

Indigenous plant species identified within the proposed development area as assessed included the following:

- *Chrysanthemoides monilifera* (LC)
- *Muraltia spinosa* (LC)
- *Cliffortia ruscifolia* (LC)
- *Hermannia confusa* (LC)
- *Cotula turbinata* (LC)
- *Carpobrotus edulis* (LC)
- *Chrysocoma ciliata* (LC)
- *Leucadendron eucalyptifolium* (LC)
- *Agathosma* sp.
- *Asparagus rubicundus* (LC)
- *Olea europaea* subsp. *Africana* (LC)
- *Brunsvigia orientalis* (LC)
- *Babiana* sp (brownish orange flower)
- *Aloe ferox* (LC)
- *Elytropappus rhinocerotis* (LC)
- *Elegia* sp
- *Berkheya armata* (LC)
- *Polygala myrtifolia* (LC)
- *Oedera squarrosa* (LC)
- *Spiloxene ovata* (LC)
- *Chysocoma ciliata* (LC)
- *Babiana ambigua* (LC)
- *Oxalis obtusa* (LC)
- *Cyphia volubilis* (DDD)
- *Eriocephalus paniculatus* (LC)
- *Rhus glauca* (LC)
- *Metalasia densa* (LC)
- *Pelargonium crispum* (LC)
- *Oedera squarrosa* (LC)
- *Polygala myrtifolia* (LC)
- *Thamnochortus* sp

- *Drosanthemum hispidum* (LC)
- *Aspalathus burchelliana* (EN) -one specimen recorded within development area

Alien and weedy plants:

- *Anagallis arvensis*

List of sensitive plant species which may potentially occur within the area as per the DEA Screening Report, but of which none was recorded on the specific proposed development site:

Sensitivity	Feature(s)
Medium	Sensitive species 964, 794, 402, 700, 439, 1128, 339, 96, 980, 1027, 521
Medium	<i>Acrodon purpureostylus</i>
Medium	<i>Trichodiadema pygmaeum</i>
Medium	<i>Drosanthemum flavum</i>
Medium	<i>Aspalathus burchelliana</i>
Medium	<i>Aspalathus calcarata</i>
Medium	<i>Aspalathus grobleri</i>
Medium	<i>Aspalathus millefolia</i>
Medium	<i>Otholobium bowieanum</i>
Medium	<i>Otholobium pungens</i>
Medium	<i>Polhillia pallens</i>
Medium	<i>Treichelia dodii</i>
Medium	<i>Hesperantha fibrosa</i>
Medium	<i>Freesia fergusoniae</i>
Medium	<i>Erica filamentosa</i>
Medium	<i>Erica prolata</i>
Medium	<i>Sebaea rara</i>
Medium	<i>Gnidia ericoides</i>
Medium	<i>Osteospermum hispidum</i> var. <i>hispidum</i>
Medium	<i>Chrysocoma flava</i>
Medium	<i>Stoebe rugulosa</i>
Medium	<i>Relhania garnotii</i>
Medium	<i>Diosma fallax</i>
Medium	<i>Agathosma minuta</i>
Medium	<i>Acmadenia laxa</i>
Medium	<i>Euchaetis avisylvana</i>
Medium	<i>Cliffortia monophylla</i>
Medium	<i>Muraltia acerosa</i>
Medium	<i>Orthochilus litoralis</i>
Medium	<i>Wiborgiella bowieana</i>
Medium	<i>Aspalathus lebeckioides</i>
Medium	<i>Aspalathus recurva</i>
Medium	<i>Romulea jugicola</i>
Medium	<i>Elegia squamosa</i>
Medium	<i>Diosma passerinoides</i>

Fauna Characteristics, Description and Distribution

No fauna or avifauna species of conservation concern was recorded within the proposed development site during the time of the surveys however fauna and avifauna species of conservation concern are present within the national park i.e. Bontebok. The proposed development areas are however also located on and adjacent to the existing Die Stroom picnic site and the ongoing human activities within this area makes it highly unlikely that the particular proposed development site is being used as preferred breeding or nesting areas for the indigenous fauna and avifauna species and these areas will most likely only be occasionally visited by fauna and avifauna species when looking for food. It is therefore also highly unlikely that any fauna or avifauna species of conservation concern or their associated preferred habitat and breeding areas will be significantly impacted by the proposed development.

The DEA Screening Report allocated an animal species theme sensitivity rating of High to the overall proposed development area and it surrounds which the specialist disagrees with as the screening report does not take into consideration the scale and of the proposed development area and its proximity to already impacted picnic areas with ongoing human impacts which will have a significant impact on which areas are preferred by animal and bird species. An animal species theme sensitivity rating of **Medium** is recommended for the proposed development area.

No animal or bird species of conservation concern or signs of breeding of these species was observed during the survey within the proposed development site, however the site is located with the Bontebok National Park and it is known that the applicable surrounds supports a high diversity of indigenous animal and bird species. Evidence of mole heaps, mice and weasel were observed throughout the site. Due to the site being frequently used by the public as a existing picnic site the area is not known to be preferred as a significant breeding site.

List of sensitive animal species which may potentially occur within the area as per the DEA Screening Report, but which was not recorded during the surveys:

Sensitivity	Feature(s)
High	Aves-Circus ranivorus
High	Aves-Circus maurus
High	Aves-Neotis denhami
High	Aves-Polemaetus bellicosus
High	Aves-Afrotis afra
Medium	Aves-Hydroprogne caspia
Medium	Invertebrate-Aneuryphymus montanus

See below most recent photos taken of proposed development site.



Photo 1: Proposed new swimming pool and additional picnic and ablution facilities at Die Stroom picninc site. (Photo taken 17/08/2022)



Photo 2: Proposed new swimming pool and additional picnic and ablution facilities at Die Stroom picninc site. (Photo taken 17/08/2022)



Photo 3: Proposed new swimming pool and additional picnic and ablution facilities at Die Stroom picninc site. (Photo taken 17/08/2022)



Photo 4: Existing road along which new pipelines and cable will be laid. (Photo taken 17/08/2022).



Photo 5: Area where pipelines to new soak away will be laid (Photo taken 17/08/2022)



Photo 6: Section through veld where new soakaway pipelines will be laid along existing soakaway pipeline to the new soakaway. (Photo taken 17/08/2023).



Photo 7: Section through veld where new soakaway pipelines will be laid along existing soakaway pipeline to the new soakaway. (Photo taken 17/08/2022).



Photo 8: Existing soakaway where new soak away will be built adjacent to the existing soakaway (Photo taken 17/08/2022)



Photo 9: Access road to picnic site along which additional parking bays are proposed. (photo taken 17/08/2022)



Photo 10: Access road to picnic site and non-perennial drainage line along which additional parking bays are proposed. (photo taken 17/08/2022)



Photo 11: Access road to picnic site along which additional parking bays are proposed. (photo taken 17/08/2022)

4.6. *Terrestrial Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs)*

The site is not mapped as a CBA or ESA because it is part of a Protected Area.

The proposed development is not expected to lead to significant high negative biodiversity impacts and will not prevent ongoing ecosystem functionality of surrounding similar undeveloped natural areas if potential environmental impacts are

mitigated and managed in line with the recommendations as provided in this report and with the implementation of an Environmental Management Plan during construction and operational phases .

4.7. Protected Areas and Priority Areas for Protected Area Expansion

In accordance with the parks management plan the proposed development site is located within an area mapped as Medium to Low sensitivity within the **Low Intensity Leisure** park use zone.

Low Intensity Leisure Zone:

- *Characteristics:* The underlying characteristic of this zone is motorized self-drive access with basic facilities. The numbers of visitors are higher than in the Remote and Primitive zones. Relatively comfortable facilities are positioned in the landscape retaining the inherent natural and visual quality which enhances the visitor experience of a more natural and self providing experience. Access roads are low key, preferably gravel roads and/or tracks to provide a more wild experience. Facilities along roads are limited to picnic sites with toilet facilities.
- *Conservation objectives of the zone:* The conservation objective is to maintain the zone in a largely natural state that is in keeping with the character of a Protected Area, mitigate the biodiversity impacts of the relatively high levels of tourism activity and infrastructure that are accommodated within this zone through careful planning and active management, and to ensure that both the negative effects of the activities and infrastructure are restricted to the zone. The zone should be managed within the following specific objectives:
- *Biophysical environment objectives:* The zone should be kept in a largely natural state. Deviation from a natural/pristine state should be minimized and limited to restricted impact footprints as far as possible. However, it is accepted that some damage to the biophysical environment associated with tourist activities and facilities will be inevitable.
- *Aesthetics and recreational environment objectives:* The zone should be maintained in a largely natural state from an aesthetics point of view. Although it is inevitable that activities and facilities will impact on the wild appearance and reduce the wilderness characteristics of the area (solitude, remoteness, wildness etc), these should be managed and limited to ensure that the area still provides a relatively natural outdoor experience.
- *Facilities:* Picnic sites, view sites, information centres, ablution facilities, parking areas, education centres etc. Small (including camping) camps of low to medium density 25-35 beds. Additional facilities can include swimming pools. Trails for 4x4 vehicles can also be provided. Day visitor site are not placed within the camps.
- *Location in Park:* Low intensity leisure areas were designated around a rationalized road network for game viewing, along a proposed linkage to a new entrance along the N2 highway (including the gateway precinct), along the park's boundary with urban and industrial areas to the north, the actively used section of the Breede River from Die Stroom to Aloe Hill containing most visitor facilities including the rest camp, and around the current administrative complex. Where possible environmentally sensitive areas like the eastern renosterveld lowlands and vleis, the central plains and hills, and the

hydrographically sensitive “Ou Reisiesbaan” basin were excluded from this zone.

In keeping with the objectives of the Low Intensity Leisure Zone within which the proposed developments falls, the footprint of the proposed developments have been kept to a minimum with placement thereof as far as possible on already disturbed and transformed areas as part of the existing Die Stroom picnic site and placing additional proposed infrastructure such as pipelines and power cables along existing infrastructure routes.

4.8. Strategic Water Source Areas (SWSA)

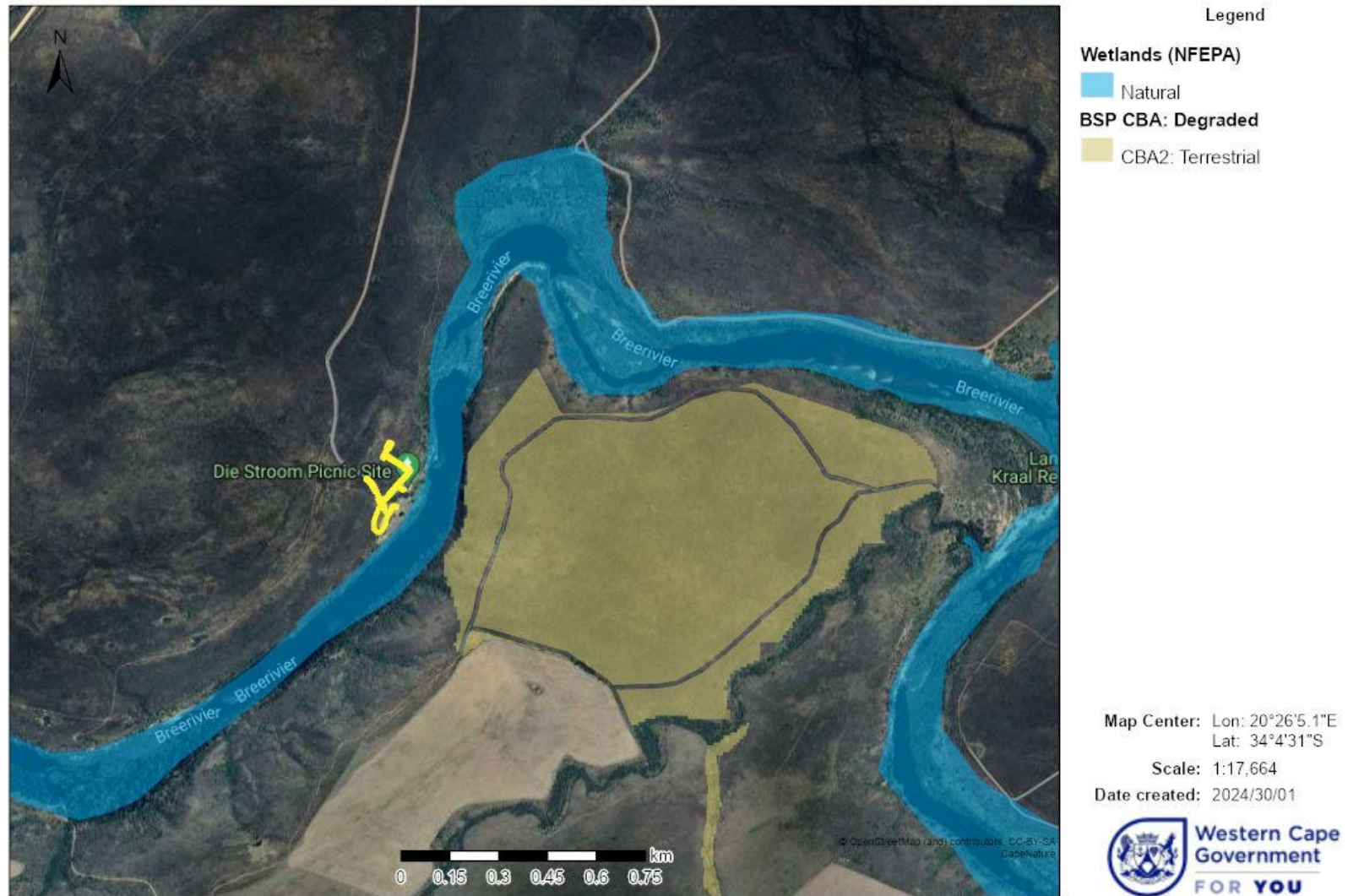
The proposed development area does not fall within an SWSA for surface water nor for groundwater and is not located above nor within close proximity to any significant aquifers.

4.9. Freshwater Ecosystem Priority Area (FEPA) and Freshwater Ecological features

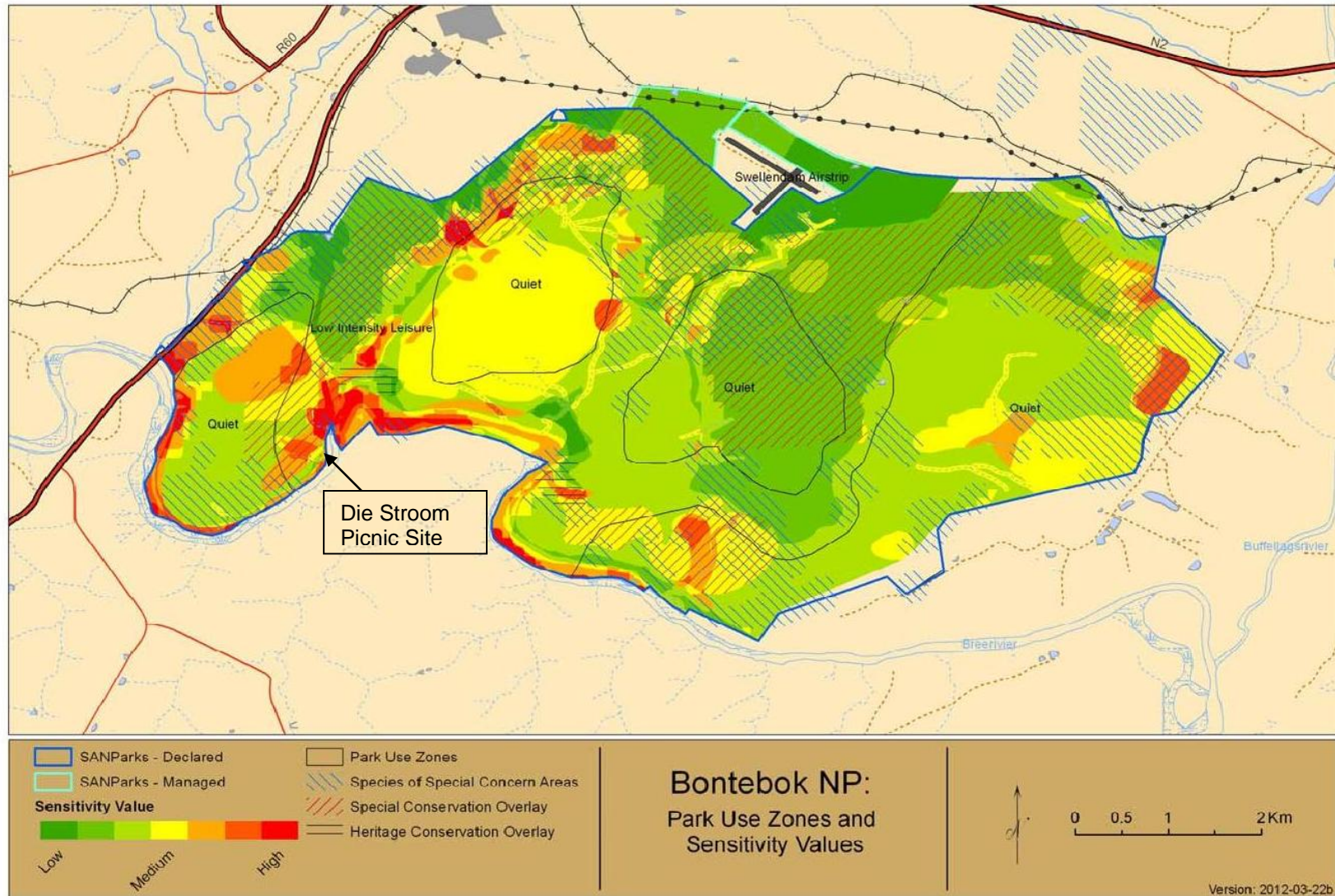
The existing Die Stroom picnic site is located adjacent to the Breerivier tributary which has been mapped as a natural NFEPA wetland, however there is no mapped NFEPA wetlands or watercourses within the proposed development site and all developments are also proposed outside of the Breerivier 1:100 year floodline area.

A watercourse feature of the site however not mapped as an natural NFEPA is the natural non-perennial drainage line crossing the proposed development site from northwest to southeast towards the Breerivier tributary, but which is only flowing temporarily during heavy rainfall acting as a natural stormwater channel, The proposed developments are located adjacent to but outside of this drainage line and current hydrological functioning of this drainage line during heavy rains is expected to continue as is throughout the construction and operational phase of the proposed development.

CBA, ESA and NFEPA Map



Map 7: SANBI CBA, ESA and NFEPA map of Die Stroom picnic site and surrounds in the Bontebok National Park.



Map 8: Park Use Zones and Sensitivity Values mapped for the Bontebok National Park and Die Stroom picnic site and surrounds.

4.10. Indigenous Forests

No indigenous forests are located on the proposed development site nor within its immediate surrounds.

5. SITE SENSITIVITY ASSESSMENT

The terrestrial biodiversity sensitivity map for the site is depicted below.

If potential environmental impacts are mitigated and managed in line with the recommendations as provided in this report and with the implementation of an Environmental Management Plan during construction and operational phases it is not expected that the proposed development will compromise the ecological functioning of any surrounding natural areas.

No animal and or plant species of conservation concern (“SCC”) were recorded on the specific proposed development site to be impacted upon during the time of the surveys, however the indigenous vegetation type occurring on the site and surrounds is listed as Endangered Swellendam Silcrete Fynbos according to the NEMBA (10/2004): National list of ecosystems that are threatened and in need of protection (as amended 18/11/2022). The remaining indigenous vegetation on the site which has not been disturbed due to previous developments such as roads, parking and pipelines associated with the existing picnic site is in a good condition in terms of diversity and very limited alien vegetation encroachments. This vegetation type is the main indigenous vegetation type represented in the park. Overall, the park also supports fauna and avifauna species of conservation concern of particular interest is the Bontebok which roams freely in the park. In accordance with the parks management plan the proposed development site is also located within an area mapped as Medium to Low sensitivity within the **Low Intensity Leisure** park use zone. Therefore, in line with the sensitivity mapping of the Bontebok National Park management plan the proposed development areas within and around the Die Stroom picnic site is to be classified of **Medium to Low Terrestrial Biodiversity Sensitivity**.



Map 9: Terrestrial Biodiversity sensitivity map. Map Key:

- Red outline indicates the boundaries of the proposed development areas.
- **Dark green** represents the Medium Sensitivity Areas as surveyed on and within a $\pm 10\text{m}$ radius of the proposed development area.
- **Orange** represents the Low Sensitivity Existing Park Roads.
- **Yellow** represents the Low Sensitivity Existing Parking Areas.
- **Purple** represents the Low Sensitivity Transformed Picnic Areas.

6. IMPACT ASSESSMENT

6.1. Assessment & Significance Criteria

The assessment criteria used in the assessment are drawn from the EIA Regulations, published by the Department of Environmental Affairs and Tourism (April 1998) in terms of the Environmental Conservation Act No. 73 of 1989, in terms of the National Environmental Management: Biodiversity Act (2004) as well as Brownlie (2005).

6.2. Assessment of Potential Impacts

The impacts identified are assessed below, before and after mitigation as well as during construction and operation. The impact assessment which follows is based on the site sensitivity and any deviations from the site sensitivity map as provided may invalidate the results of the assessment.

6.3. Risk Assessment Criteria

Below is the assessment methodology utilized in determining the significance of the potential mining impacts on the biophysical environment, and where applicable the possible alternatives. The methodology is broadly consistent with that described in the Department of Environmental Affairs' Guideline Document on the EIA Regulations (1998).

For each potential impact, the significance is determined by specified factors as in Table 1. Significance is described prior to mitigation as well as with the most effective mitigation measure(s) in place.

The mitigation described in the document represents the full range of plausible and pragmatic measures that must be implemented.

Despite the attempts at providing a completely objective and impartial assessment of the environmental implications of proposed activities, the specialist can never completely escape the subjectivity inherent in attempting to define significance.

Recognising this, potential subjectivity in the current process is addressed as follows:

- Be clear about the difficulty of being completely objective in the determination of significance;
- Develop an explicit methodology for assigning significance to impacts and outlining this methodology in detail. Having an explicit methodology not only forces the assessor to come to terms with the various facets contributing toward determination of significance, thereby avoiding arbitrary assignment, but also provides the reader of the report with a clear summary of how the assessor derived the assigned significance; and
- Wherever possible, differentiating between the likely significance of potential environmental impacts as experienced by the various affected parties.

Although these measures may not totally eliminate subjectivity, they do provide an explicit context within which to review the assessment of impacts.

Table 1: Assessment criteria for the evaluation of impacts

Criteria	Description		
Nature	a description of what causes the effect, what will be affected, and how it will be affected.		
	Type	Score	Description
Extent (E)	None (No)	1	Footprint
	Site (S)	2	On site or within 100 m of the site
	Local (L)	3	Within a 20 km radius of the centre of the site
	Regional (R)	4	Beyond a 20 km radius of the site
	National (Na)	5	Crossing provincial boundaries or on a national / land wide scale
Duration (D)	Short term (S)	1	0 – 1 years
	Short to medium (S-M)	2	2 – 5 years
	Medium term (M)	3	5 – 15 years
	Long term (L)	4	> 15 years
	Permanent(P)	5	Will not cease
Magnitude (M)	Small (S)	0	will have no effect on the environment
	Minor (Mi)	2	will not result in an impact on processes
	Low (L)	4	will cause a slight impact on processes
	Moderate (Mo)	6	processes continuing but in a modified way
	High (H)	8	processes are altered to the extent that they temporarily cease
	Very high (VH)	10	results in complete destruction of patterns and permanent cessation of processes.
Probability (P) the likelihood of the impact actually occurring. Probability is estimated on a scale, and a score assigned	Very improbable (VP)	1	probably will not happen
	Improbable (I)	2	some possibility, but low likelihood
	Probable (P)	3	distinct possibility
	Highly probable (HP)	4	most likely
	Definite (D)	5	impact will occur regardless of any prevention measures
Significance (S)	Determined through a synthesis of the characteristics described above: S = (E+D+M) x P Significance can be assessed as low, medium or high		
Low: < 30 points:	The impact would not have a direct influence on the decision to develop in the area		
Medium: 30 – 60 points:	The impact could influence the decision to develop in the area unless it is effectively mitigated		
High: > 60 points:	The impact must have an influence on the decision process to develop in the area		
No significance	When no impact will occur or the impact will not affect the environment		
Status	Positive (+)		Negative (-)
The degree to which the impact can be reversed	Completely reversible (R)	90-100%	The impact can be mostly to completely reversed with the implementation of the correct mitigation and rehabilitation measures.
	Partly reversible (PR)	6-89%	The impact can be partly reversed providing that mitigation measures as stipulated in the EMP are implemented and rehabilitation measures are undertaken
	Irreversible (IR)	0-5%	The impact cannot be reversed, regardless of the mitigation or rehabilitation measures taking place
The degree to which the impact may cause irreplaceable loss of resources	Resource will not be lost (R)	1	The resource will not be lost or destroyed provided that mitigation and rehabilitation measures as stipulated in the EMP are implemented
	Resource may be partly destroyed (PR)	2	Partial loss or destruction of the resources will occur even though all management and mitigation measures as stipulated in the EMP are implemented
	Resource cannot be replaced (IR)	3	The resource cannot be replaced no matter which management or mitigation measures are implemented.
The degree to which the impact can be avoided	Completely avoidable (CA)	1	The impact can be completely avoided providing that all management and mitigation measures as stipulated in the EMP are implemented
	Partly avoidable (PA)	2	The impact cannot be completely avoided even though all management and mitigation measures as stipulated in the EMP are implemented. Implementation of these measures will provide a measure of mitigatability
	Un-avoidable (UA)	3	The impact cannot be avoided no matter which management or mitigation measures are implemented.
The degree to which the impact can be managed/mitigated	Complete manageable	1	The impact can be completely managed providing that all management and mitigation measures as stipulated in the EMP are implemented
	Partly manageable	2	The impact cannot be completely managed even though all management and mitigation measures as stipulated in the EMP are implemented.

Criteria	Description		
	Unmanageable	3	Implementation of these measures will provide a measure of mitigability The impact cannot be managed no matter which management or mitigation measures are implemented.

TERRESTRIAL BIODIVERSITY IMPACTS ASSESSMENT

(a) Impacts that may result from the planning, design and **construction phases** (briefly describe and compare the impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that may occur as a result of the planning, design and construction phases.

Nature of potential impact:

Impacts of construction activities on indigenous vegetation associated with Endangered – Swellendam Silcrete Fynbos also part of a mapped Protected Area

Discussion:

No viable populations of plant species of conservation concern was specifically recorded on the proposed development site, however the indigenous vegetation is part of the Endangered Swellendam Silcrete Fynbos vegetation, located within a Protected Area – Bontebok National Park and the DFFE Screening Report allocated a plant species theme sensitivity rating of **Medium** to the overall proposed development areas, and it surrounds which the specialist agrees with. However the transformed areas are of **Low sensitivity**. The remaining indigenous vegetation on the sites which have not been disturbed due to previous developments such as roads, parking and pipelines associated with the existing picnic site is in a good condition in terms of diversity and very limited alien vegetation encroachments.

One *Aspalathus burchelliana* (Endangered) was recorded next to the road edge within the proposed development area. However ongoing human impacts (with or without the proposed development) will most likely lead to the destruction of the specimen if not relocated, hence relocation is proposed by the botanical specialist away from the road edge and outside of the proposed development footprint area.

In keeping with the objectives of the Low Intensity Leisure Zone within which the proposed developments falls, the footprint of the proposed developments have been kept to a minimum with placement thereof as far as possible on already disturbed and transformed areas as part of the existing Die Stroom picnic site and placing additional proposed infrastructure such as pipelines and power cables along existing infrastructure routes.

Swellendam Silcrete Fynbos is well represented in the Bontebok National Park. The permanent loss of 0.2ha of Swellendam Silcrete Fynbos which is habitat that can support local plant SCC is not expected to be significant as extensive similar habitat will remain within the park which still supports viable populations of the SCC in the park.

Cumulative impacts:

During construction a total area of ±0.44ha will be impacted upon/cleared however only ±0.2ha of indigenous vegetation will be permanently cleared.

Mitigation:

- Clearance of indigenous vegetation must be kept to a minimum clearly demarcating the proposed development area before construction commencement, maintaining the demarcation throughout the construction phase and only clearing the area required for the development.
- During site clearance topsoil must be separated from subsoil and stored separately (and clearly marked) throughout construction phase. Topsoil must be protected from wind and water erosion and returned to rehabilitated areas as soon as possible to promote successful rehabilitation
- All unused construction materials must be removed from site immediately after construction completion.
- No waste pollution may occur due to the construction activities and all waste must be contained and disposed of at the municipal landfill site on a daily basis.
- All landscaping of undeveloped and areas disturbed during construction must be done with indigenous vegetation.
- Grass for landscaping must be limited to *Cynodon dactylon* (kweekgras) or *Panicum maximum* (buffelsgras), no kikuyu grass (*Pennisetum clandestinum*) may be used or planted for landscaping of disturbed areas.
- Planted grass such as for the proposed picnic area must be prevented from encroaching further into the remaining and rehabilitating indigenous vegetation landscaped and undeveloped areas.

Criteria	Layout Alternative 1		No-Go Alternative	
	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation
Extent	1	1		
Duration	5	5		
Magnitude	2	1		
Probability	5	4		
Significance	40 - Medium	28 - Low		
Status	Medium Negative Significance without Mitigation	Low Negative Significance with Mitigation		
Reversibility	100% Reversible			
Irreplaceable loss of resources	2 – Partly, some loss of indigenous vegetation will occur but will be limited.			
Can impacts be mitigated?	2 – Partly, some loss of indigenous vegetation will occur but will be limited.			

Not Applicable (No construction activities to take place during the No-Go Alternative)

Nature of potential impact:

Impacts of construction activities on indigenous vegetation Species of Conservation Concern

Discussion:

One *Aspalathus burchelliana* (Endangered) was recorded next to the road edge within the proposed development area. However ongoing human impacts (with or without the proposed development) will most likely lead to the destruction of the specimen if not relocated, hence relocation is proposed by the botanical specialist away from the road edge and outside of the proposed development footprint area.

In keeping with the objectives of the Low Intensity Leisure Zone within which the proposed developments falls, the footprint of the proposed developments have been kept to a minimum with placement thereof as far as possible on already disturbed and transformed areas as part of the existing Die Stroom picnic site and placing additional proposed infrastructure such as pipelines and power cables along existing infrastructure routes.

Swellendam Silcrete Fynbos is well represented in the Bontebok National Park. The permanent loss of 0.2ha of Swellendam Silcrete Fynbos which is habitat that can support local plant SCC is not expected to be significant as extensive similar habitat will remain within the park which still supports viable populations of the SCC in the park.

Cumulative impacts:

It is not expected that the proposed construction activities will lead to the loss of any plant species of conservation concern.

Mitigation:

- Clearance of indigenous vegetation must be kept to a minimum clearly demarcating the proposed development area before construction commencement, maintaining the demarcation throughout the construction phase and only clearing the area required for the development.
- Search and rescue of viable indigenous vegetation species must be conducted prior to site clearance within the demarcated development areas. Indigenous species rescued can be used for landscaping of impacted construction areas after construction completion. Specific viable species to be rescued prior to site clearance must be identified by a suitable botanical specialist once the proposed development site has been demarcated.
- During site clearance topsoil must be separated from subsoil and stored separately (and clearly marked) throughout construction phase. Topsoil must be protected from wind and water erosion and returned to rehabilitated areas as soon as possible to promote successful rehabilitation.
- One *Aspalathus burchelliana* was recorded next to the road edge within the proposed development area. Ongoing human impacts (with or without the proposed development) will most likely lead to the destruction of the specimen if not relocated, hence relocation is proposed by the botanical specialist away from the road edge and outside of the proposed development footprint area.
- Park management will be responsible for rescue/removal of these plants and to take care of these plants until it can be used on site for landscaping and rehabilitation purposes.

- All unused construction materials must be removed from site immediately after construction completion.
- No waste pollution may occur due to the construction activities and all waste must be contained and disposed of at the municipal landfill site on a daily basis.
- All landscaping of undeveloped and areas disturbed during construction must be done with indigenous vegetation.
- Grass for landscaping must be limited to *Cynodon dactylon* (kweekgras) or *Panicum maximum* (buffelsgras), no kikuyu grass (*Pennisetum clandestinum*) may be used or planted for landscaping of disturbed areas.
- Planted grass such as for the proposed picnic area must be prevented from encroaching further into the remaining and rehabilitating indigenous vegetation landscaped and undeveloped areas.

Criteria	Layout Alternative 1		No-Go Alternative	
	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation
Extent	1	1		
Duration	5	5		
Magnitude	2	2		
Probability	2	2		
Significance	16 - Low	16 - Low		
Status	Low Negative Significance without Mitigation	Low Negative Significance with Mitigation		
Reversibility	100% Reversible			
Irreplaceable loss of resources	2 – Partly, some loss of indigenous vegetation will occur but will be limited.			
Can impacts be mitigated?	2 – Partly, some loss of indigenous vegetation will occur but will be limited.			

Not Applicable (No construction activities to take place during the No-Go Alternative)

Nature of potential impact:

Impacts of construction activities on indigenous fauna and avifauna habitat associated with Endangered – Swellendam Silcrete Fynbos as part of a mapped Protected Area

Discussion:

The habitat was assessed to have a high sensitivity due to the presence of endangered vegetation type and it is located in the Bontebok National Park. The Bontebok National Park Management Plan (2013 – 2023) refers to a day visitor facility and picnic area in the concept development plan for development within the timeframes of the plan and is included in the associated map (SANParks 2013). The location is within the low intensity leisure zone. The development proposal can therefore be considered to be aligned to the management plan at a broad scale.

Bontebok *Damaliscus pygargus pygargus* was assessed having a high sensitivity rating. There are recent records of bontebok within the Die Stroom picnic site. Based on the available information, the proposed footprint is within confirmed habitat for an SCC and the sensitivity therefore be rated as high in accordance with the protocols. Since the bontebok is known to be at the stroom area, it is proof that they area adapted and that the human activities do not impact on them. Furthermore, the park is responsible for the management of this species and the current management actions are sufficient and appropriate which is evidence of them being in the area. The swimming pool and parking area will take up a small area of their habitat and they will not be affected.

African Marsh Harrier *Circus ranivorus* and Black Harrier *Circus ranivorus* was assessed having a medium sensitivity rating. These species was not recorded on site and only likely to roam the area. *Rhabdomys pumilio* (although not recorded its presence is know from historic visits) is expected to occur in the project area suggesting that it could use the project area for foraging. Primary nesting habitat is not present on the impacted areas. They will simply move into the bigger surrounding area during construction. The current picnic site and activities already impacted on them.

The other species mapped in the screen tool report or known to be in the area was assessed to have a low sensitivity.

The development of the site would have a **Low Negative** impact on animal species. The proposed development

will have relatively little animal species impacts provided that appropriate management measures included in the EMP and adhered to.

Cumulative impacts:

During construction a total area of ±0.44ha will be impacted upon/cleared however only ±0.2ha of indigenous vegetation will be permanently cleared.

Mitigation:

- Clearance of indigenous vegetation must be kept to a minimum clearly demarcating the proposed development area before construction commencement, maintaining the demarcation throughout the construction phase and only clearing the area required for the development.
- All unused construction materials must be removed from site immediately after construction completion.
- No waste pollution may occur due to the construction activities and all waste must be contained and disposed of at the municipal landfill site on a daily basis.
- All landscaping of undeveloped and areas disturbed during construction must be done with indigenous vegetation.
- Construction activities must be completed as quickly as possible to limit disturbance caused to animal and bird life as far as possible

Criteria	Layout Alternative 1		No-Go Alternative	
	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation
Extent	1	1		
Duration	5	5		
Magnitude	4	1		
Probability	5	4		
Significance	50 - Medium	28 – Low		
Status	Medium Negative Significance without Mitigation	Low Negative Significance with Mitigation		
Reversibility	100% Reversible			
Irreplaceable loss of resources	2 – Partly, some loss of indigenous vegetation will occur but will be limited.			
Can impacts be mitigated?	2 – Partly, some loss of indigenous vegetation will occur but will be limited.			

Not Applicable (No construction activities to take place during the No-Go Alternative)

Nature of potential impact:

Impacts of construction activities on indigenous fauna and avifauna Species of Conservation Concern

Discussion:

No fauna or avifauna species of conservation concern was recorded within the proposed development site during the time of the surveys however fauna and avifauna species of conservation concern are present within the national park i.e. Bontebok. Evidence of mole heaps, termites, mice and weasels were also observed throughout the site. The proposed development areas are however also located on and adjacent to the existing Die Stroom picnic site and the ongoing human activities within this area makes it highly unlikely that the particular proposed development site is being used as preferred breeding or nesting areas for the indigenous fauna and avifauna species and these areas will most likely only be occasionally visited by fauna and avifauna species when looking for food. It is therefore also highly unlikely that any fauna or avifauna species of conservation concern or their associated preferred habitat and breeding areas will be significantly impacted by the proposed development.

There is also a probability that at least some animal and/or bird SCCs known to occur within the general area may frequent the site and surrounds. Apart from the Bontebok antelope these SCC are also likely to include Denham's Bustard (*Neotis denhami*) and Black Harrier (*Circus maurus*), however the construction and operational phase of the proposed developments are not expected to impact on the presence and habits of these species any more than the current picnic site activities are impacting upon them.

Bontebok *Damaliscus pygargus pygargus* was assessed having a high sensitivity rating. There are recent records of bontebok within the Die Stroom picnic site. Based on the available information, the proposed footprint is within confirmed habitat for an SCC and the sensitivity therefore be rated as high in accordance with the protocols. Since

the bontebok is known to be at the stroom area, it is proof that they area adapted and that the human activities do not impact on them. Furthermore, the park is responsible for the management of this species and the current management actions are sufficient and appropriate which is evidence of them being in the area. The swimming pool and parking area will take up a small area of their habitat and they will not be affected.

African Marsh Harrier *Circus ranivorus* and Black Harrier *Circus ranivorus* was assessed having a medium sensitivity rating. These species was not recorded on site and only likely to roam the area. *Rhabdomys pumilio* (although not recorded its presence is know from historic visits) is expected to occur in the project area suggesting that it could use the project area for foraging. Primary nesting habitat is not present on the impacted areas. They will simply move into the bigger surrounding area during construction. The current picnic site and activities already impacted on them.

The other species mapped in the screen tool report or known to be in the area was assessed to have a low sensitivity.

The development of the site would have a **Low Negative** impact on animal species. The proposed development will have relatively little animal species impacts provided that appropriate management measures included in the EMPr and adhered to.

Cumulative impacts:

Potential cumulative impacts of the construction activities may be loss or disturbance to fauna and avifauna species of conservation concern

Mitigation:

- Clearance of indigenous vegetation must be kept to a minimum clearly demarcating the proposed development area before construction commencement, maintaining the demarcation throughout the construction phase and only clearing the area required for the development.
- All unused construction materials must be removed from site immediately after construction completion.
- No waste pollution may occur due to the construction activities and all waste must be contained and disposed of at the municipal landfill site on a daily basis.
- All landscaping of undeveloped and areas disturbed during construction must be done with indigenous vegetation. .
- Construction activities must be completed as quickly as possible to limit disturbance caused to animal and bird life as far as possible
- No trapping, hunting or any injury to animal or birdlife may occur during construction activities.
- Search and rescue operations must be conducted before site clearance activities commences and should any local animal or birdlife be found within the construction area they must be carefully moved to the adjacent natural areas by park management not to be impacted upon.

Criteria	Layout Alternative 1		No-Go Alternative	
	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation
Extent	2	2		
Duration	1	1		
Magnitude	6	6		
Probability	3	3		
Significance	27 – Low	27 – Low		
Status	Low Negative Significance without Mitigation	Low Negative Significance with Mitigation		
Reversibility	100% Reversible			
Irreplaceable loss of resources	2 – Partly, some disturbance will occur but will be limited.			
Can impacts be mitigated?	2 – Partly, some disturbance will occur but will be limited.			

Not Applicable (No construction activities to take place during the No-Go Alternative)

(b) Impacts that may result from the **operational phase** (briefly describe and compare impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the operational phase.

Nature of potential impact:

Impacts of operational activities on remaining and surrounding indigenous vegetation as part of Endangered – Swellendam Silcrete Fynbos

Discussion:

Ongoing human activities on the site and surrounds due to it being used as a picnic site may lead indigenous vegetation degradation if not properly managed. However, the site has already been managed by park management for a number of years and will continue to be managed as such once additional developments have been completed.

Cumulative impacts:

Cumulative impacts of the operational activities on indigenous vegetation are related to ongoing human impacts during the use of the new facilities which may cause pollution or loss of indigenous vegetation species if not managed.

Mitigation:

- The discharge of stormwater must not lead to waste pollution or erosion of surrounding indigenous vegetation areas.
- Ongoing monitoring of erosion within and around the development site and should any signs of erosion be detected immediate rectification and further prevention measures must be put in place under the guidance of a qualified ecological specialist so as to prevent any additional cumulative impacts on the environment.
- The impacted site must be monitored for alien vegetation encroachment and should alien vegetation encroach on the impacted site it must be removed and monitored in accordance with parks alien vegetation management plan.
- All infrastructure and developments must be maintained in a good working condition not leading to any environmental degradation.
- Swimming pool water and sewage may not be discharged into the environment and must be managed in a closed system which must be maintained and monitored for leakages.
- Good waste management practices must be implemented not allowing any waste to accumulate or be disposed of in surrounding natural areas or landscaped indigenous vegetation areas.
- Undeveloped and landscaped indigenous vegetation areas on the property must be maintained in such a manner that the use of the facilities at Die Stroom picnic site does not lead to destruction of any additional indigenous vegetation. To achieve this the park must maintain the swimming pool fencing, remove any alien vegetation on the which may encroach on natural areas, make sure that planted indigenous grass does not encroach on adjacent undeveloped and landscaped indigenous vegetation areas and place sign boards conspicuously along the edge of the undeveloped areas indicating that indigenous vegetation may not be picked/destroyed and is to be conserved at all times.

Criteria	Layout Alternative 1		No-Go Alternative	
	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation
Extent	2	1		
Duration	5	5		
Magnitude	4	2		
Probability	3	2		
Significance	33 – Medium	16 – Low		
Status	Medium Negative Significance without Mitigation	Low Negative Significance with Mitigation		
Reversibility	100% Reversible			
Irreplaceable loss of resources	2 – Partly, some disturbance will occur but will be limited.			
Can impacts be mitigated?	2 – Partly, some disturbance will occur but will be limited.			

Not Applicable (No construction activities to take place during the No-Go Alternative)

Nature of potential impact:

Impacts of operational activities on the indigenous animal and bird life including species of conservation concern.

Discussion:

Ongoing human activities on the site and surrounds due to it being used as a picnic site may lead disturbances to

animal and birdlife if not properly managed. However, the site has already been managed by park management for a number of years and will continue to be managed as such once additional developments have been completed.

There is also a probability that at least some animal and/or bird SCCs known to occur within the general area may frequent the site and surrounds. Apart from the Bontebok antelope these SCC are also likely to include Denham's Bustard (*Neotis denhami*) and Black Harrier (*Circus maurus*), however the construction and operational phase of the proposed developments are not expected to impact on the presence and habits of these species any more than the current picnic site activities are impacting upon them.

Bontebok *Damaliscus pygargus pygargus* was assessed having a high sensitivity rating. There are recent records of bontebok within the Die Stroom picnic site. Based on the available information, the proposed footprint is within confirmed habitat for an SCC and the sensitivity therefore be rated as high in accordance with the protocols. Since the bontebok is known to be at the stroom area, it is proof that they area adapted and that the human activities do not impact on them. Furthermore, the park is responsible for the management of this species and the current management actions are sufficient and appropriate which is evidence of them being in the area. The swimming pool and parking area will take up a small area of their habitat and they will not be affected.

African Marsh Harrier *Circus ranivorus* and Black Harrier *Circus ranivorus* was assessed having a medium sensitivity rating. These species was not recorded on site and only likely to roam the area. *Rhabdomys pumilio* (although not recorded its presence is know from historic visits) is expected to occur in the project area suggesting that it could use the project area for foraging. Primary nesting habitat is not present on the impacted areas. They will simply move into the bigger surrounding area during construction. The current picnic site and activities already impacted on them.

Cumulative impacts:

Cumulative impacts of the operational activities on animal and bird life will be disturbances caused to local animal and bird life due to ongoing human activities such as recreational use of the swimming pool and facilities provided.

Mitigation:

- No trapping, hunting or any injury to animal or birdlife may occur during operational activities. Should any local animal or birdlife be found within the fenced swimming pool area during operational activities they must either be left undisturbed or carefully be moved to the adjacent natural areas by park management not to be impacted upon.
- The discharge of stormwater and management of effluent must not lead to waste pollution or erosion of surrounding indigenous vegetation areas.
- Ongoing monitoring of erosion within and around the development site and should any signs of erosion be detected immediate rectification and further prevention measures must be put in place under the guidance of a qualified ecological specialist so as to prevent any additional cumulative impacts on the environment.
- The impacted site must be monitored for alien vegetation encroachment and should alien vegetation encroach on the impacted site it must be removed and monitored in accordance with the parks alien vegetation management plan.
- All infrastructure and developments must be maintained in a good working condition not leading to any environmental degradation.
- Good waste management practices must be implemented not allowing any waste to accumulate or be disposed of in surrounding natural areas or landscaped indigenous vegetation areas.
- No high intensity lights may be left on during the night that shines outwards unto the adjacent indigenous vegetation areas as this will lead to light pollution impacting on especially nocturnal animal and bird species.
- Undeveloped and landscaped indigenous vegetation areas on the property must be maintained in such a manner that the use of the facilities at Die Stroom picnic site does not lead to destruction of any additional indigenous vegetation. To achieve this the park must maintain the swimming pool fencing, remove any alien vegetation on the which may encroach on natural areas, make sure that planted indigenous grass does not encroach on adjacent undeveloped and landscaped indigenous vegetation areas and place sign boards conspicuously along the edge of the undeveloped areas indicating that indigenous vegetation may not be picked/destroyed and is to be conserved at all times.

Criteria	Layout Alternative 1		No-Go Alternative	
	Without Mitigation	With Mitigation	Without Mitigation	With Mitigation
Extent	2	1	Not Applicable (No construction activities to	
Duration	5	5		

Magnitude	6	2			take place during the No-Go Alternative)
Probability	3	2			
Significance	39 – Medium	16 – Low			
Status	Medium Negative Significance without Mitigation	Low Negative Significance with Mitigation			
Reversibility	100% Reversible				
Irreplaceable loss of resources	2 – Partly, some loss of indigenous vegetation will occur but will be limited.				
Can impacts be mitigated?	2 – Partly, some loss of indigenous vegetation will occur but will be limited.				

(c) Impacts that may result from the **No-Development Option**

If the proposed Die Stroom picnic site swimming pool, recreational facilities and infrastructure upgrades are not to proceed it is not expected that any significant detrimental impacts will occur in terms of the terrestrial features of the site and surrounds and processes will continue as is. However, the aim of the proposed swimming pool and picnic area upgrade next to the Breerivier is to enhance the experience of the local community and visitors use to visiting the site and provide safer conditions for swimming etc. It is also proposed to provide much needed additional public ablution facilities, additional parking areas and formal picnic areas to prevent the public from impacting on the surrounding natural vegetation areas like parking within natural areas because there are currently not enough formal facilities provided at the popular picnic spot, hence potentially decreasing terrestrial biodiversity impacts due to uncontrolled human activities in the long term.

7. CONCLUSION AND RECOMMENDATIONS

One plant species of conservation concern (“SCC”) were recorded on the specific proposed development site to be impacted upon during the time of the surveys and animal species of conservation concern such as Bontebok has been previously recorded within the vicinity of Die Stroom Picnic site, the indigenous vegetation type occurring on the site and surrounds is listed as Endangered Swellendam Silcrete Fynbos according to the NEMBA: National list of ecosystems that are threatened and in need of protection (as amended 18/11/2022) and the development area is also located within the Bontebok National Park which is home to animal and bird species of conservation concern as well as several recorded plant species of conservation concern. The remaining indigenous vegetation on the site which has not been disturbed due to previous developments such as roads, parking and pipelines associated with the existing picnic site is in a good condition in terms of diversity and very limited alien vegetation encroachments. This vegetation type is the main indigenous vegetation type represented in the park. Overall, the park also supports fauna and avifauna species of conservation concern of particular interest is the Bontebok which roams freely in the park. In accordance with the parks management plan the proposed development site is also located within an area mapped as Medium to Low sensitivity within the **Low Intensity Leisure Park Use Zone**. Therefore, in line with the sensitivity mapping of the Bontebok National Park

management plan the proposed development areas within and around the Die Stroom picnic site is to be classified of **Medium to Low Terrestrial Biodiversity Sensitivity**.

In keeping with the objectives of the Low Intensity Leisure Zone within which the proposed developments falls, the footprint of the proposed developments have been kept to a minimum with placement thereof as far as possible on already disturbed and transformed areas as part of the existing Die Stroom picnic site and placing additional proposed infrastructure such as pipelines and power cables along existing infrastructure routes.

Expected terrestrial biodiversity impacts of the proposed development can be summarised as below and will include:

- A total area of ± 0.44 ha will be impacted upon/cleared during the initial construction phase, however only ± 0.2 ha of indigenous vegetation will remain permanently cleared once the development has been completed and disturbed areas such as pipelines have rehabilitated with natural vegetation. Therefore, the permanent loss of ± 0.2 ha of indigenous habitat as part of Endangered Swellendam Silcrete Fynbos has been assessed and allocated a significance rating of low negative after mitigation.
- No negative impacts on any viable populations of plant species of conservation concern are expected to occur during the construction phase as the only species of conservation concern that was recorded within the development site is *Aspalathus burchelliana* (Endangered) which was recorded on the edge of the existing access road to the site and relocation is proposed outside of the development footprint area. Therefore, the potential construction impacts on plant species of conservation concern have been assessed and allocated a significant rating of low negative after mitigation.
- Construction activities will impact on 0.44ha indigenous fauna and avifauna habitat associated with Endangered – Swellendam Silcrete Fynbos as part of a mapped Protected Area, however only ± 0.2 ha of indigenous vegetation habitat will remain permanently cleared once the development has been completed and disturbed areas such as pipelines have rehabilitated with natural vegetation. Therefore, the permanent loss of ± 0.2 ha of indigenous fauna and avifauna habitat as part of Endangered Swellendam Silcrete Fynbos has been assessed and allocated a significance rating of low negative after mitigation.
- No significant negative impacts on any fauna and avifauna species of conservation concern are expected to occur during the construction phase and none are expected to breed on the particular development sites as the site is already used by the public on a regular basis as a picnic site. Therefore, the potential construction impacts on fauna and avifauna species of conservation concern have been assessed and allocated a significance rating of low negative after mitigation.
- With proper maintenance and management measures implemented by the park management during the operational phase of the proposed developments it is not expected that the additional facilities and activities proposed at the Die Stroom picnic site will have a significant negative impact on remaining indigenous vegetation and existing fauna and avifauna within the applicable area. Therefore, the potential operational impacts on the terrestrial biodiversity features of the site and surrounds have been assessed and allocated a significance rating of low negative after mitigation.

To achieve the objective of having an overall low terrestrial biodiversity impact the following management and mitigation measures are proposed and must be incorporated into the Environmental Management Plan:

- Clearance of indigenous vegetation must be kept to a minimum clearly demarcating the proposed development area before construction commencement, maintaining the demarcation throughout the construction phase and only clearing the area required for the development
- During site clearance topsoil must be separated from subsoil and stored separately (and clearly marked) throughout construction phase. Topsoil must be protected from wind and water erosion and returned to rehabilitated areas as soon as possible to promote successful rehabilitation
- All unused construction materials must be removed from site immediately after construction completion.
- No waste pollution may occur due to the construction activities and all waste must be contained and disposed of at the municipal landfill site on a daily basis.
- All landscaping of undeveloped and areas disturbed during construction must be done with indigenous vegetation.
- Grass for landscaping must be limited to *Cynodon dactylon* (kweekgras) or *Panicum maximum* (buffelsgras), no kikuyu grass (*Pennisetum clandestinum*) may be used or planted for landscaping of disturbed areas.
- Planted grass such as for the proposed picnic area must be prevented from encroaching further into the remaining and rehabilitating indigenous vegetation landscaped and undeveloped areas.
- Search and rescue of viable indigenous vegetation species must be conducted prior to site clearance within the demarcated development areas. Indigenous species rescued can be used for landscaping of impacted construction areas after construction completion. Specific viable species to be rescued prior to site clearance must be identified by a suitable botanical specialist once the proposed development site has been demarcated.
- Park management will be responsible for rescue/removal of these plants and to take care of these plants until it can be used on site for landscaping and rehabilitation purposes.
- Construction activities must be completed as quickly as possible to limit disturbance caused to animal and bird life as far as possible.
- No trapping, hunting or any injury to animal or birdlife may occur during construction activities.
- Search and rescue operations must be conducted before site clearance activities commences and should any local animal or birdlife be found within the construction area they must be carefully moved to the adjacent natural areas by park management not to be impacted upon.
- The discharge of stormwater must not lead to waste pollution or erosion of surrounding indigenous vegetation areas.
- Ongoing monitoring of erosion within and around the development site and should any signs of erosion be detected immediate rectification and further prevention measures must be put in place under the guidance of a qualified ecological specialist so as to prevent any additional cumulative impacts on the environment.
- The impacted site must be monitored for alien vegetation encroachment and should

alien vegetation encroach on the impacted site it must be removed and monitored in accordance with parks alien vegetation management plan.

- All infrastructure and developments must be maintained in a good working condition not leading to any environmental degradation.
- Swimming pool water and sewage may not be discharged into the environment and must be managed in a closed system which must be maintained and monitored for leakages.
- Good waste management practices must be implemented not allowing any waste to accumulate or be disposed of in surrounding natural areas or landscaped indigenous vegetation areas.
- Undeveloped and landscaped indigenous vegetation areas on the property must be maintained in such a manner that the use of the facilities at Die Stroom picnic site does not lead to destruction of any additional indigenous vegetation. To achieve this the park must maintain the swimming pool fencing, remove any alien vegetation on the site which may encroach on natural areas, make sure that planted indigenous grass does not encroach on adjacent undeveloped and landscaped indigenous vegetation areas and place sign boards conspicuously along the edge of the undeveloped areas indicating that indigenous vegetation may not be picked/destroyed and is to be conserved at all times.
- One *Aspalathus burchelliana* was recorded next to the road edge within the proposed development area. Ongoing human impacts (with or without the proposed development) will most likely lead to the destruction of the specimen if not relocated, hence relocation is proposed by the botanical specialist away from the road edge and outside of the proposed development footprint area.
- No trapping, hunting or any injury to animal or birdlife may occur during operational activities. Should any local animal or birdlife be found within the fenced swimming pool area during operational activities they must either be left undisturbed or carefully be moved to the adjacent natural areas by park management not to be impacted upon.
- No high intensity lights may be left on during the night that shines outwards unto the adjacent indigenous vegetation areas as this will lead to light pollution impacting on especially nocturnal animal and bird species.

Provided that the mitigation measures to reduce the significance of the potential environmental impacts of the activities as listed above are implemented, then the activities are not likely to result in long-term degradation of the receiving terrestrial biodiversity environment or significant net loss thereof.

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APPENDIX A SPECIALIST CV

CURRICULUM VITAE – NICOLAAS WILLEM HANEKOM

Profession: Environmental Scientist and Environmental Assessment Practitioner

Date of Birth: 01/02/1967

BIOGRAPHICAL SKETCH

Nicolaas Hanekom is a qualified Environmental Assessment Practitioner (“EAP”) who holds a Masters Technologiae, Nature Conservation (“Vegetation Ecology and Biodiversity Assessment”) degree from the Cape Peninsula University of Technology. Nicolaas is certified in terms of section 20(3)(a) of the Natural Scientific Professions Act, 2003 (Act 27 of 2003), as a Professional Natural Scientist (Ecological Science (Pri.Sci.Nat); Aquatic Science & Conservation Science (Cand.Sci.Nat). He further qualified in Environmental Management Systems ISO 14001:2004, at the Centre for Environmental Management, North-West University, as well as Environmental Management Systems ISO 14001:2004 Audit: Internal Auditors Course to ISO 19011:2003 level, from the Centre for Environmental Management, North-West University qualifying him to execute audits to ISO/SANS environmental compliance and EMS standards.

He has also completed the suite of Greener Governance courses with certificates in;

- An Overview of Environmental Management at the Local Government Level, Centre for Environmental Management, North-West University;
- Greener Governance for Local Authorities, Centre for Environmental Management, North-West University;
- Tools for Integrated Environmental Management and Governance, Centre for Environmental Management, North-West University.

He further attended and obtained a certificate on Integrated Protected Area Planning at the Centre for Environmental Development, University of Kwa Zulu Natal and a certificate in Project Management (Theory and Practical), through CS Holdings. Nicolaas has lectured in two subjects at the Cape Peninsula University of Technology. He has 33 years of environmental planning experience, working for Free State and Western Cape departments of environmental affairs, where he reviewed and commented on development (EIA) applications, in the West Coast Region.

He has, as practising EAP been responsible for many environmental impact assessments and EIA applications, waste license and atmospheric emission license applications.

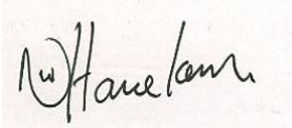
He has also been involved in the implementation of several environmental management systems. He has engaged successfully with various clients as set out below.

Areas of specialisation:	<ul style="list-style-type: none"> • Ecosystem (terrestrial and aquatic) monitoring and assessments • Design of monitoring programmes for ecosystems (terrestrial and aquatic) • Environmental Impact Assessments • River classification and environmental water requirements • Wetlands Delineation • River and Wetlands management • Water Use Authorization Applications • Water quality management • River Health Assessments
Countries of Work Experience:	South Africa (Northern Cape, Western Cape, Free State, Mpumalanga, Gauteng)
Employment Record	<ul style="list-style-type: none"> • Student at Bontebok National Park (1992) • Assistant Reserve Manager at Gariep Dam Nature Reserve, Free State (1993 - 1998) • Reserve Manager, Conservation Services Manager for Western Cape Nature Conservation Board (1998 - 2006) • External Lecturer at Cape Peninsula University of Technology (2003 - 2005) • Director: Environmental Management at Cape Lowlands Environmental Services (2006 – 2010) • Director, Environmental Management and lead Environmental Impact Assessment Practitioner at Eco Impact (Pty) Ltd (2010 – to August 2019) • Director, Environmental Management and lead Environmental Impact Assessment Practitioner at Enviro-EAP (Pty) Ltd (September 2019 – to date)
Professional membership, accreditations and courses	<ul style="list-style-type: none"> • South African Council for Natural Scientists Professions Pri.Sci.Nat (Ecological Science) • Riparian vegetation identification and health assessment. Internal Western Cape Nature Conservation short course presented by Dr C Boucher (Stellenbosch University) in 2000. • SASS5 Aquatic Biomonitoring Training Course. 2 to 5 September 2013. Ground Truth Water and Environmental Engineering consultancy in partnership with the Department of Water Affairs. • Workshop on “Section 21(c) and (i) Water Use Training: Understanding Watercourses and Managing Impacts to their Characteristics”. 10 May 2017. Presented by Dr Wietsche Roets of the Department of Water and Sanitation (Sub-Directorate: Instream Water Use).
Summary of experience	<p>1992: South African National Parks. Student at Bontebok National Park with management and monitoring actions related to the Breede River.</p> <p>1993 -1998: Free State Nature Conservation. Ecological management and monitoring actions related to the Gariep Dam, Orange and Caledon Rivers.</p>

	<p>1998 -2006: CapeNature. Ecological management and monitoring actions related to the Berg River Estuary, Verlorenvlei, Lamberts bay's Jackalsvlei, Wadriest Soutpanne, Oliphant's River mouth, Rocherpan Nature Reserve, etc. Review and assessment of EIA applications, inclusive of Freshwater ecology. Did some site visits with Department of Water Affairs and Forestry (Hester Lyons) to confirm the presence of aquatic ecological features during EIA water use registration applications.</p> <p>2006 to date: Cape Lowland Environmental Services, Eco Impact Legal Consultant and Enviro-EAP. Ecological (Freshwater and aquatic) Specialist input, assessment, monitoring and reports.</p>
<p>Publications and assessment reports</p>	<p>Just to name a few. Was involved in many Ecological Assessments, monitoring and inputs in EIA applications.</p> <ul style="list-style-type: none"> • Elandskloof Farm 475 Citrusdal Biodiversity Baseline Survey. August 2010. This Biodiversity Assessment Covering Terrestrial and Aquatic Aspects to Inform Decisions Regarding The Proposed Elandskloof Weir Flood Damage Project On Farm 475, In The Citrusdal Area. • Cape Solar Energy Electricity Generation Facility. Farm 187/3 & 187/13 Kenhardt. Biodiversity And Ecological Baseline Survey. January 2011. (Included Terrestrial and aquatic ecological assessments and water use authorization applications) • Prieska Photovoltaic Power Generation Project. Prieska Commonage Northern Cape. Biodiversity And Ecological Baseline Survey. July 2011. (Included Terrestrial and aquatic ecological assessments and water use authorization applications) • Witteklip Erf 123 Extension, Vredenburg. Biodiversity Baseline Survey. Updated - October 2012 (Included Terrestrial and aquatic ecological assessments and water use authorization applications) • Baseline Biodiversity Survey And Wetland Delineation for ECCA Holdings: Cape Bentonite Mine on Erf 1412 Near Heidelberg. Prepared for: Shangoni Management Services Pry (Ltd). October 2014. • Freshwater Impact Assessment Laingsburg Flood Damage Repairs & Storm Water Infrastructure. 18 February 2016. • Ecological Assessment for Swartland Municipality - Upgrades To Voortrekker/Bokomo Road And Voortrekker/Rozenburg Road Intersections and Upgrade to the Diep River Bridge, Malmesbury on A Portion Of Erf 327, Malmesbury (Road) Erf 1530, Diep River Bridge Crossing, and Erf 1528, Property South of Diep River where Road Widening and Turning Circle Will Be Constructed. March 2016. (Freshwater Ecology Inputs and Water Use Registration) • Freshwater Impact Assessment. McGregor Bridge, Robertson Bridge and Willem Nels River Maintenance Management Plan. 24 June 2016. (Freshwater Ecology assessment and input as well as Water Use Registration) • Water Use Authorization Application Risk Matrix. Orange Grove Trust Vegetation Clearing and Agricultural Development on Portion 4 of Farm Glen Heatlie No 316, Worcester. 12 June 2017. (Freshwater ecological inputs in EIA process and Water Use Registration). • Water Use Authorization Application Risk Matrix Prepared For: Witzenberg Municipality Sand Mine Farm 1 Prince Alfred Hamlet. 28 March 2017. (Freshwater ecological inputs in EIA process and Water Use Registration). • Proposed Hartmanshoop Agri Vegetation Clearing Project and Irrigation on Erf 686, Laingsburg. 12 August 2017. (Freshwater ecological inputs in Water Use Registration). • County Fair: Hocraft Abattoir And Rendering Facility Waste Water Treatment Works "CF Hocraft WWTW" Mosselbank River Second Quarter 2018 Biomonitoring Report. June 2018. (Done quarterly biomonitoring for the last three years).

CERTIFICATION

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe my qualifications, my experience, and me.

A handwritten signature in black ink on a light-colored background. The signature is written in a cursive style and reads "N Hanekom".

Nicolaas Hanekom (SACNASP registration number 004415).



**herewith certifies that
Nicolaas Willem Hanekom**

Registration Number: 004415

is a registered scientist

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

- Ecological Science (Professional Natural Scientist)
- Aquatic Science (Candidate Natural Scientist)
- Conservation Science (Candidate Natural Scientist)
- Zoological Science (Candidate Natural Scientist)

Effective **27 July 2011** Expires **31 March 2026**



Chairperson

Chief Executive Officer



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