PLANT SPECIES 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

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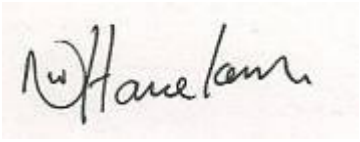
MAY 2025

DECLARATION OF THE 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 **14 May 2025**

Signature of the ~~EAP~~/ Specialist: Date:

Enviro-EAP (Pty) Ltd

Name of company (if applicable):

COMPLIANCE WITH THE DEPARTMENT OF ENVIRONMENTAL AFFAIRS SCREENING TOOL PROTOCOLS (GOVERNMENT NOTICE NO.1150, GOVERNMENT GAZETTE 43855: 30 OCTOBER 2020)

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
Details of all Species of Conservation Concern (SCC) found or suspected to occur on site, ensuring sensitive species are appropriately reported	Section 4.4
The online database name, hyperlink and record accession numbers for disseminated evidence of SCC found within the study area	Section 4.4
The location of areas not suitable for development and to be avoided during construction where relevant	Section 4.4
Areas not suitable for development, to be avoided during construction and operation (where relevant)	Section 4.4
Additional environmental impacts expected from the proposed development based on those already evident on the site and a discussion on the cumulative impacts	Section 5
A discussion on the cumulative impacts	Section 5
Impact management actions and impact management outcomes proposed by the specialist for inclusion in the EMPr	Section 5
A motivation where the development footprint was not considered stating reasons why these were not being considered	Section 1 and 6
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 6
A motivation must be provided if there were any development footprints identified as above that were identified as having “low” or “medium” plant species sensitivity and were not considered appropriate	Section 6

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1. INTRODUCTION AND METHODOLOGY

This report presents the findings of the Plant Species Impact Assessment that was prepared by Nicolaas Hanekom as part of the basic assessment environmental impact assessment done for the proposed swimming pool, recreational facilities and associated infrastructure developments at Die Stroom picnic site in the Bontebok National Park on Erf RE/5338, Swellendam.

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 plant species 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 protocol[1] provides the criteria for the reporting of requirements for the assessment and reporting of impacts on plant species for activities requiring environmental authorisation.

1.4. Terms of Reference

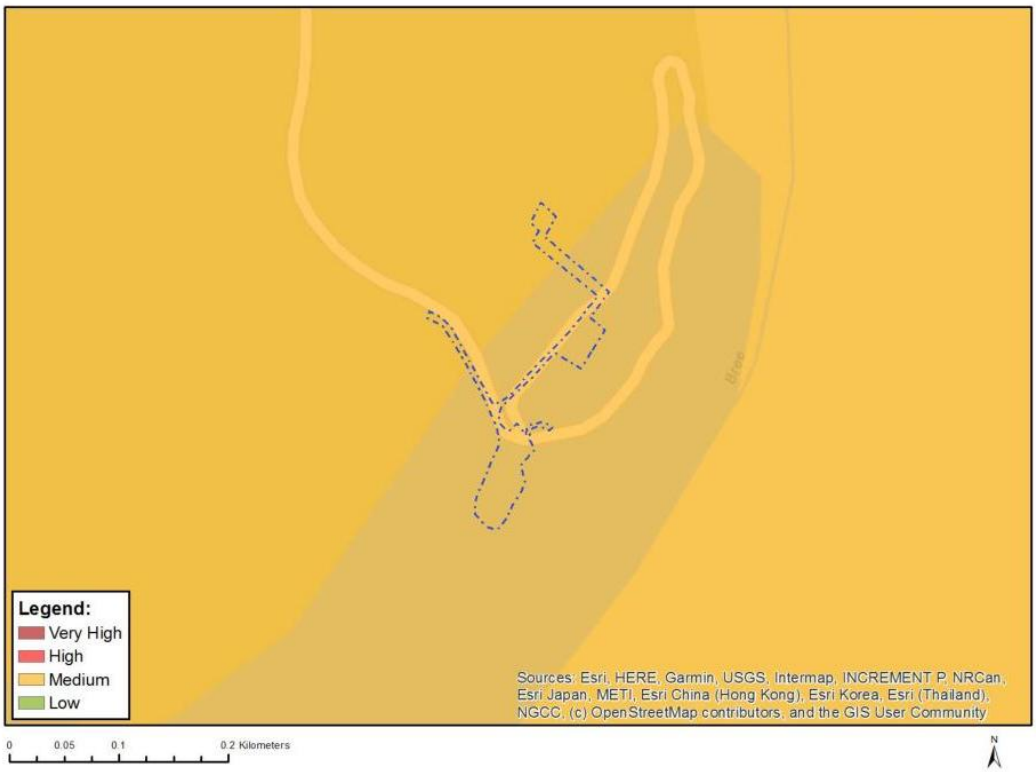
Prior to beginning the assessment, the current use of the land and the potential environmental sensitivity of the site as identified by the national web based environmental screening tool must be confirmed by undertaking an Initial Site Sensitivity Verification. The Initial Site Sensitivity Verification 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 plant 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 "Medium sensitivity for plant species theme". Map 1 depicts the property on which the "Die Stroom" picnic site development activities are proposed which falls within Medium Plant Species Sensitivity areas (refer to Map 1 below). Although no plant species of conservation concern was initially recorded on site the indigenous vegetation onsite was verified by the specialist to be in a good condition and because the vegetation type is Swellendam Silcrete Fynbos which has been listed as Endangered in terms of section 52 of the National Environmental Management Biodiversity Act, 2004 (Act No 10 of 2004) National list of ecosystems that are threatened and in need of protection (as amended 18/11/2022) a Plant Species Assessment was proposed by the specialist to be conducted.

[1] Published in Government Notice No. 1150. GOVERNMENT GAZETTE 43855 30 OCTOBER 2020.This gazette is also available free online at www.gpwonline.co.za

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Map 1: DFFE Screening Report plant species sensitivity map for proposed "Die Stroom" picnic area swimming pool and associated infrastructure in Bontebok National Park.

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

- The assessment must be undertaken in accordance with the *Species Environmental Assessment Guideline*[2]; and must; identify the SCC which were found, observed or are likely to occur within the study area;
- provide evidence (photographs or sound recordings) of each SCC found or observed within the study area, which must be disseminated by the specialist to a recognized online database facility[3], immediately after the site inspection has been performed (prior to preparing the report contemplated in paragraph 3);

[2] Available athttp**s**://bgis.sanbi.org/
[3] The preferred platform is iNaturalist.org but any other national or international virtual museum

- identify the distribution, location, viability[4] and provide a detailed description of population size of the SCC, identified within the study area;
- identify the nature and the extent of the potential impact of the proposed development on the population of the SCC located within the study area;
- determine the importance of the conservation of the population of the SCC identified within the study area, based on information available in national and international databases, including the IUCN Red List of Threatened Species, South African Red List of Species, and/or other relevant databases;
- determine the potential impact of the proposed development on the habitat of the SCC located within the study area;
- include a review of relevant literature on the population size of the SCC, the conservation interventions as well as any national or provincial species management plans for the SCC. This review must provide information on the need to conserve the SCC and indicate whether the development is compliant with the applicable species management plans and if not, include a motivation for the deviation;
- identify any dynamic ecological processes occurring within the broader landscape that might be disrupted by the development and result in negative impact on the identified SCC, for example, fires in fire-prone systems;
- identify any potential impact of ecological connectivity in relation to the broader landscape, resulting in impacts on the identified SCC and its long term viability;
- determine buffer distances as per the *Species Environmental Assessment Guidelines* used for the population of each SCC;
- discuss the presence or likelihood of additional SCC including threatened species not identified by the screening tool, *Data Deficient* or *Near Threatened Species*, as well as any undescribed species[5]; or roosting and breeding or foraging areas used by migratory species where these species show significant congregations, occurring in the vicinity; and
- identify any alternative development footprints within the preferred site which would be of "low" or "medium" sensitivity as identified by the screening tool and verified through the site sensitivity verification.

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

- Contact details and curriculum vitae of the specialist including SACNASP registration number and field of expertise and their curriculum vitae;
- A signed statement of independence by the specialist;
- Duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;
- A description of the methodology used to undertake the impact assessment and site inspection, including equipment and modelling used where relevant; a description of the mean density of observations/number of sample sites per unit area[6] and the site inspection observations;
- a description of the assumptions made and any uncertainties or gaps in knowledge or data;
- details of all SCC found or suspected to occur on site, ensuring sensitive species are appropriately reported;

[4] the ability to survive and reproduce in the long term

- the online database name, hyperlink and record accession numbers for disseminated evidence of SCC found within the study area;
- the location of areas not suitable for development and to be avoided during construction where relevant;
- a discussion on the cumulative impacts;
- impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr);
- a reasoned opinion, based on the findings of the specialist assessment, regarding the acceptability or not of the development and if the development should receive approval or not, related to the specific theme being considered, and any conditions to which the opinion is subjected if relevant; and
- a motivation must be provided if there were any development footprints identified as above that were identified as having “low” or “medium” plant species sensitivity and were not considered appropriate.

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 line transects established across the selected site.
- Species were identified and collated.
- Additional random sample points were selected from other sites surrounding the proposed impacted areas for comparative purposes.
- Any additional species of significance, not identified within the sample sites were also noted.

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 plant species 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. Minimum Criteria for Reporting on Identified Environmental Themes (March & October 2020 – referred to as “the protocols”) state that the assessment must be undertaken within the proposed development footprint. The assessment was undertaken within the proposed development footprint including its immediate surrounds (within a radius of ±10m).

Map 2: Proposed development footprint (outlined in red) and surveyed area (outlined in light green)

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.
- Important catchments and protected areas expansion areas were extracted from the National Protected Areas Expansion Strategy 2008 (NPAES).
- The CapeNature Spatial Biodiversity Plan 2017 (Pence 2017)
- Conducting site visits

In addition, use was made of the following data:

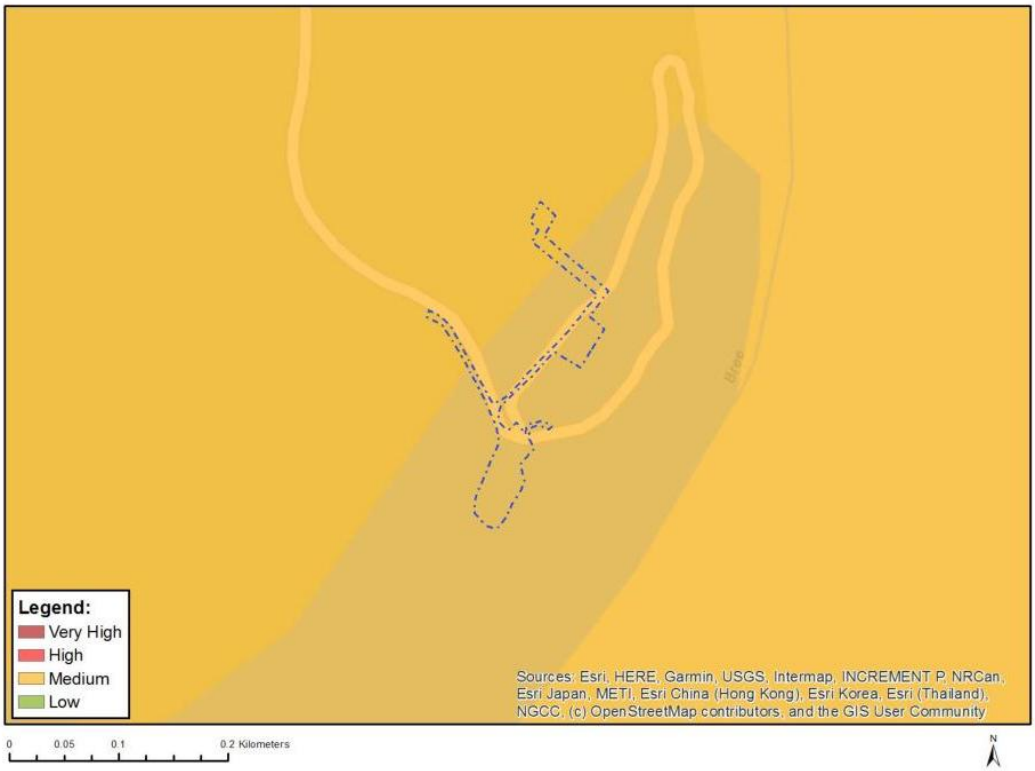
- SANBI veld types data;
- Species lists and distribution maps provided by Bontebok National Park; and
- Literature as referenced

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 plant species. During the site visit, 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 species observed were recorded. 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). The presence of sensitive habitats such as wetlands or pans 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 PLANT SPECIES THEME SENSITIVITY



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Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

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

SCC Species	Conservation Importance (CI)	Functional Integrity (FI)	Receptor Resilience	SEI
Aspalathus burchelliana Endangered B1ab(ii,iii)	Very high EOO <4000 km². More than 60% of the habitat has already been transformed by agriculture and fewer than five locations are likely to remain.	Very high The development site was revisited on 26 March 2025 to confirm the presence of the *Aspalathus burchelliana* as recorded on iNaturalist within the vicinity of the "Die Stroom" picnic site	High Ongoing human impacts (with or without the proposed development) will most likely lead to the destruction of the specimen	**High.** One *Aspalathus burchelliana* was recorded next to the road edge within the proposed development area. Ongoing human

	Habitat decline is continuing due to vineyard expansion, especially around Robertson, and due to livestock grazing throughout the range. There are no recent collections of this species, except from the Bontebok National Park, which might be the only remaining location.	and what is believed to be the exact same specimen as recorded on iNaturalist was found to be located on the edge of the access road to Die Stroom picnic site. However in comparison to the condition of the specimen when originally recorded on iNaturalist in 2017 and now on 26 March 2025.	if not relocated, hence relocation is proposed by the botanical specialist away from the road edge and outside of the proposed development footprint area.	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.

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	Very high	High	**High.** Only for the non disturbed small area. The rest of the site has a low sensitivity.
	The condition of the vegetation outside of existing disturbance 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	The condition of the vegetation outside of existing disturbance 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	The condition of the vegetation outside of existing disturbance 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.	aligned to the management plan at a broad scale.	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.	

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 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 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 *Aspalathus burchelliana* was recorded next to the road edge within the proposed development area. 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 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 ll World Heritage Site.

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

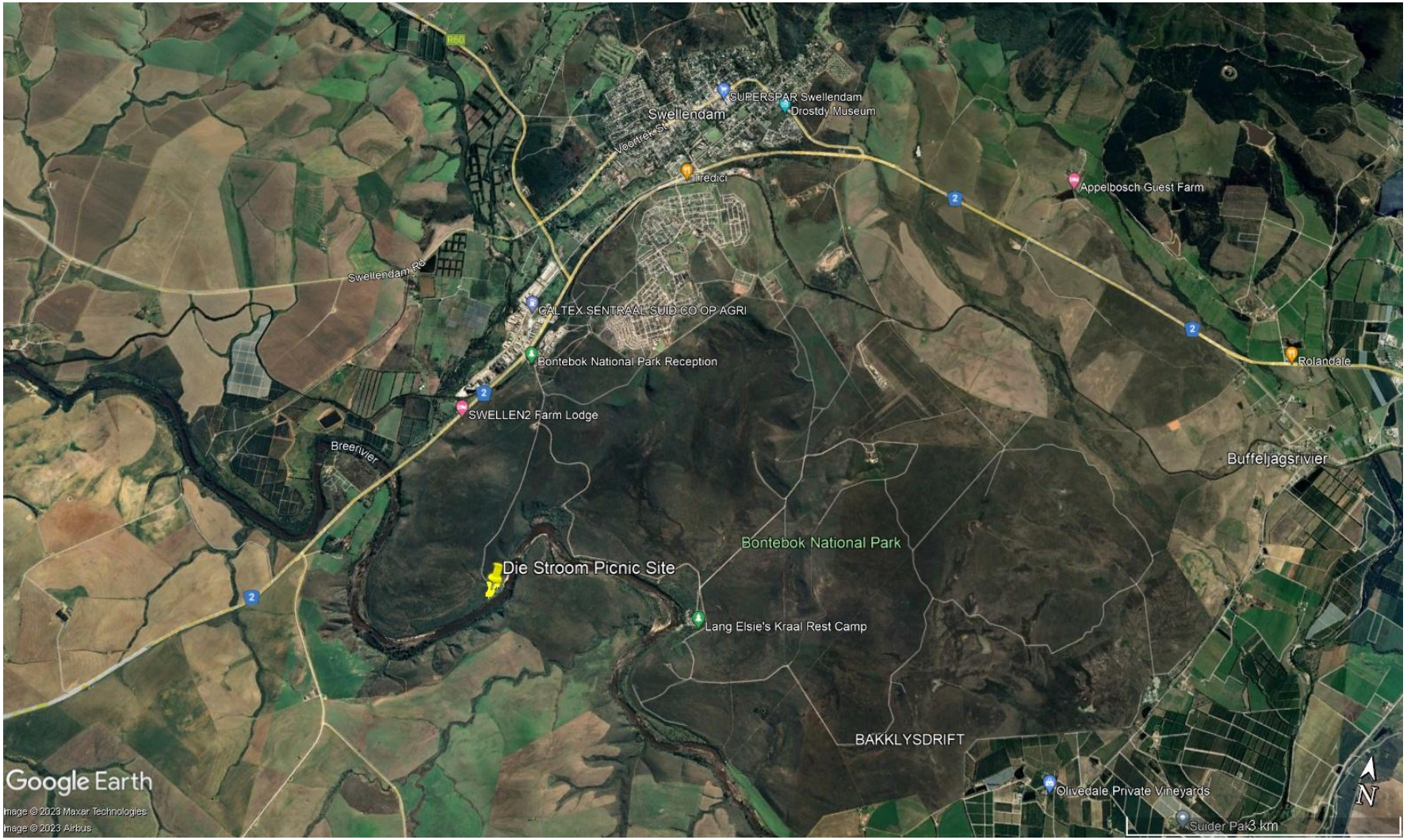
The construction footprint will be ± 0.44ha and the final development footprint as described above will be ± 0.28ha which includes the permanent clearance of ±0.2ha of indigenous vegetation.

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

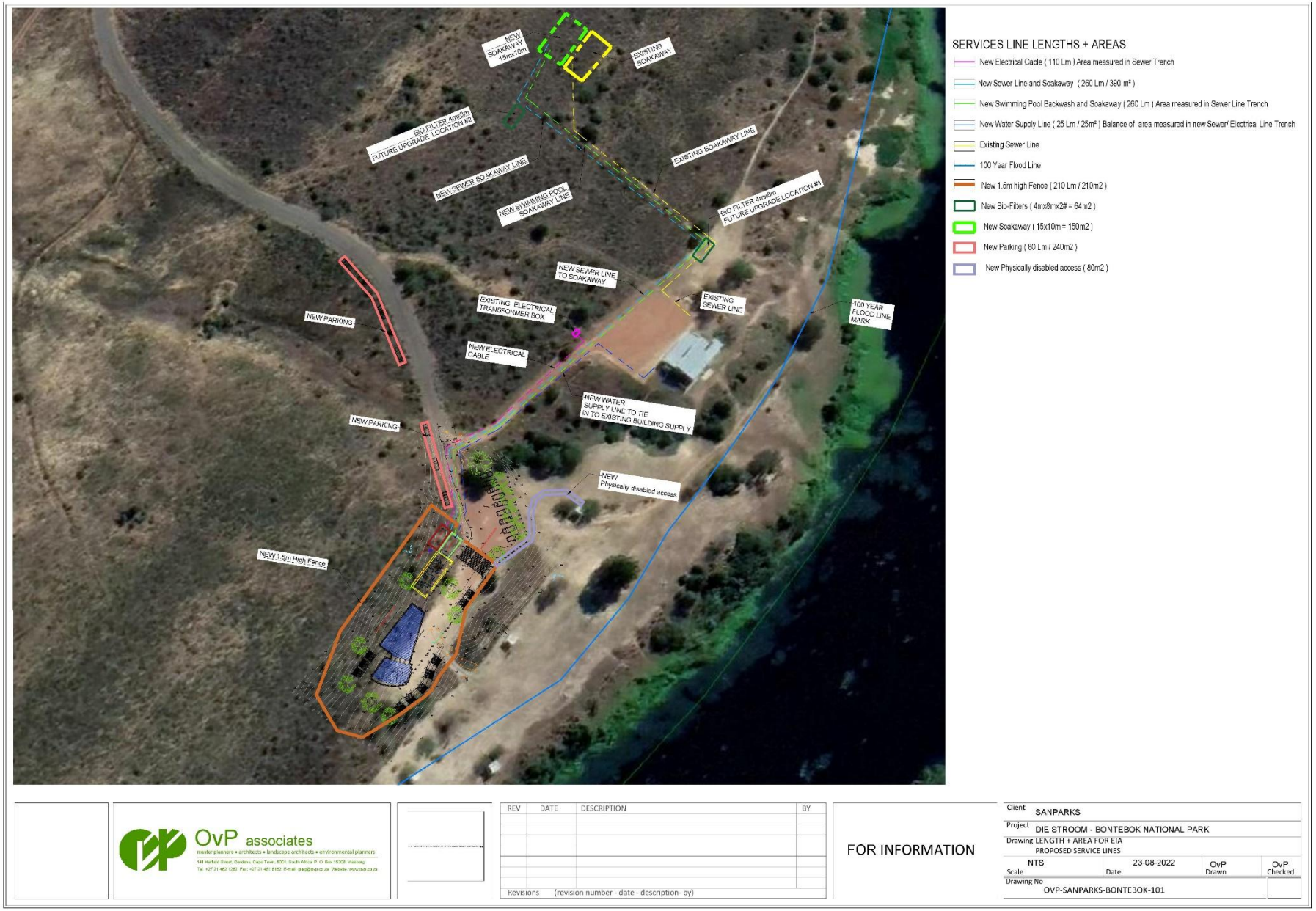
quality, clarity, depth and hazardous rubble found on the river bed, the lack of lifeguards on duty and possible attacks by Zambezi (bull) sharks, which have been documented as dwellers of the Breede River. SANParks has therefore cited “swim at own risk” for the afore-mentioned reasons at the relevant 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 with 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 3: Locality map for Bontebok National Park at Swellendam in the Western Cape.



Map 4: Locality map for Die Stroom Picnic site in the Bontebok National Park, Swellendam.



Map 5: Layout map for developments proposed at Die Stroom Picnic Site in Bontebok National Park, Swellendam.

4. DESCRIPTION OF THE AFFECTED ENVIRONMENT.

4.1. Locality

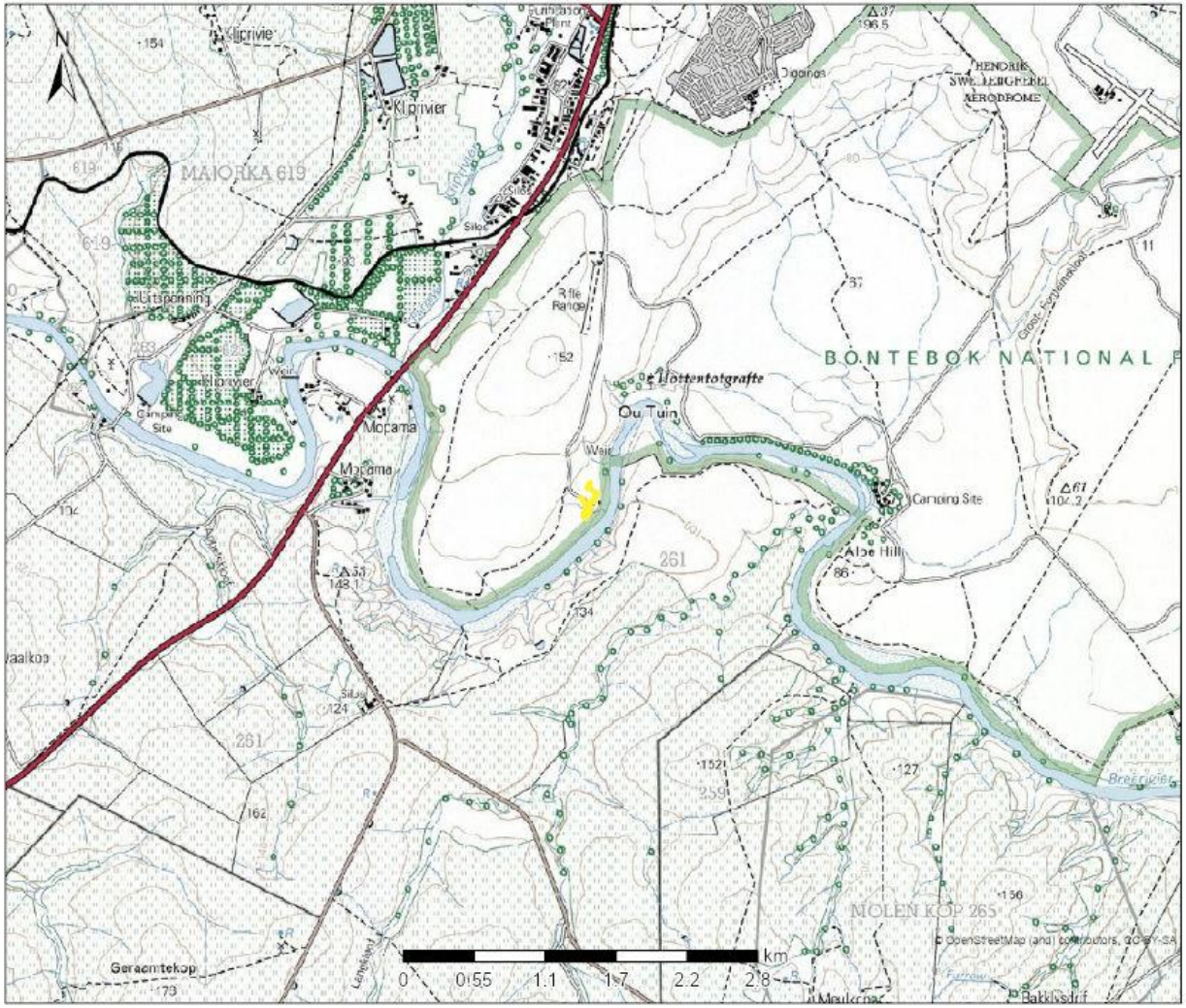
Die Stroom picnic site is an historical picnic site next to the Breerivier tributary within the Bontebok National Park. The park itself lies adjacent to the town of Swellendam in the Western Cape and the main entrance is located on your lefthand site just outside of Swellendam along the N2 towards Cape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



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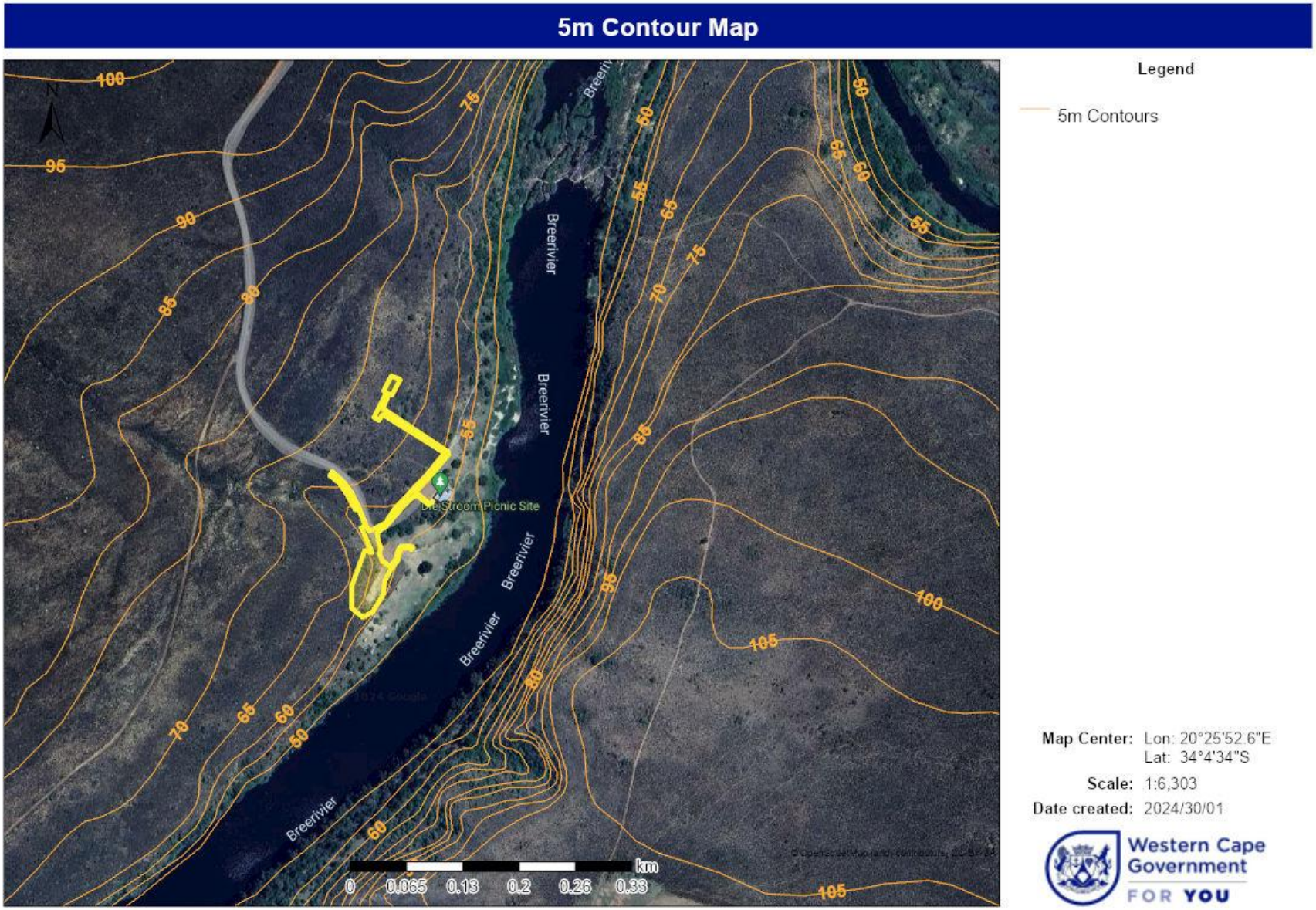
Map Center: Lon: 20°25'48.8"E
Lat: 34°4'35.3"S

Scale: 1:50,000

Date created: 2024/16/02

Western Cape Government
FOR YOU

Map 6: 1:50 000 Topographical map of proposed developments at Die Stroom picnic site in the Bontebok National Park.

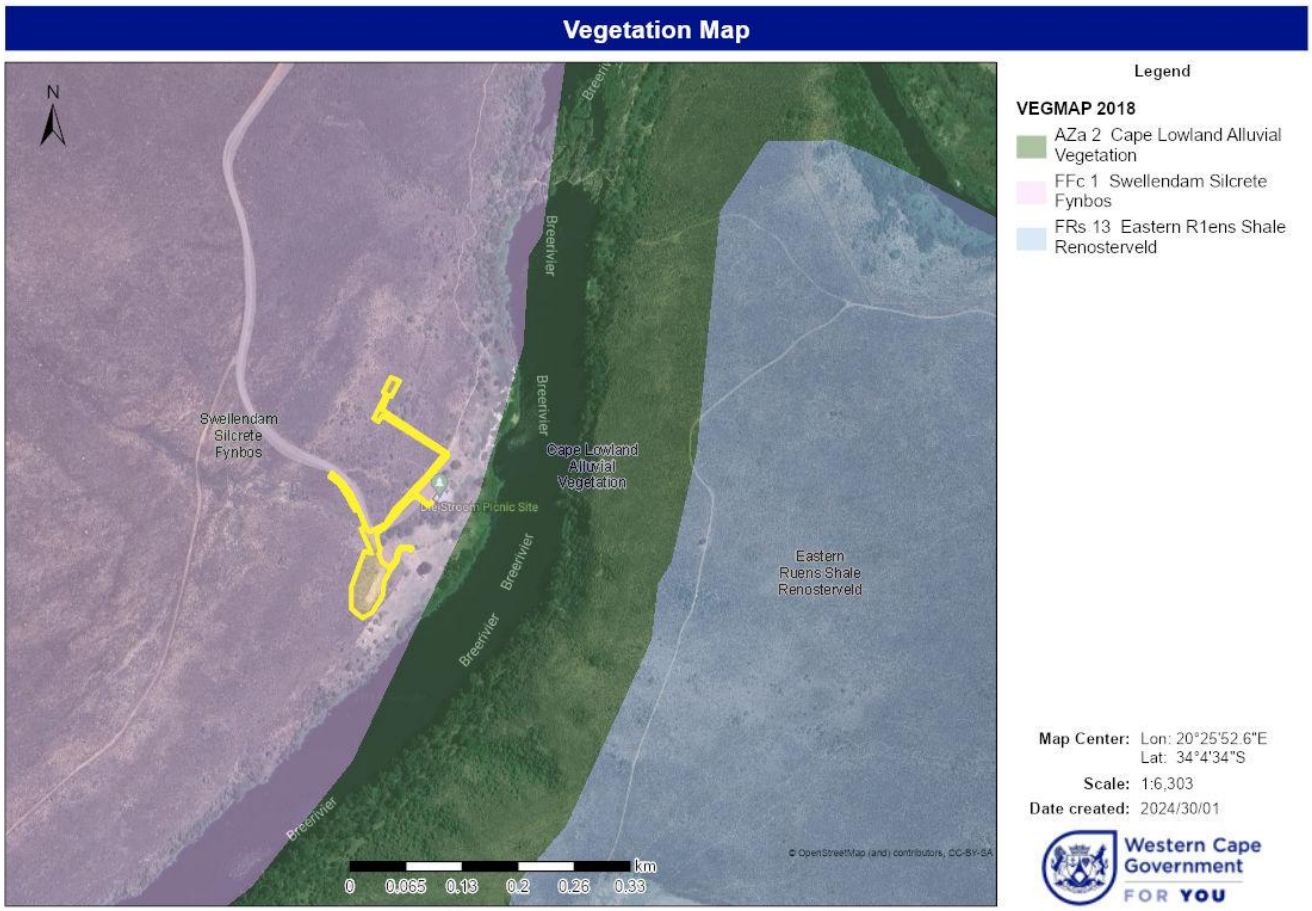


Map 7: 5m Contour map of proposed developments at Die Stroom picnic site in the Bontebok National Park.

4.4. Description of the Plant (Flora) Species

4.4.1. Identify The SCC Which Were Found, Observed Or Are Likely To Occur Within The Study Area

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. 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).



Map 8: SA Vegetation Map (2018) of proposed Die Stroom picnic site in the Bontebok National Park and surrounds.

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. Refer to 4.4.6

below for a list of indigenous vegetation species recorded within the proposed development area.

According to the recorded plant species of concern distribution map for the Bontebok National Park (refer to map 9 below) the two plant SCCs which are located closest to the development site are *Stoebe rugulosa* and *Aspalathus grobleri*.

Photo 1: *Stoebe rugulosa* photo taken by Dr Alexey Yakovlev on 11 March 2010 within the Bontebok National Park.

Photo 2: *Aspalathus grobleri* photo taken by Mr Nick Helme in Swellendam area date unkown.

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.

Photo 3: 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.

Photo 4: 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.

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**.

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

Sensitivity	**Feature(s)**
Medium	Sensitive species 964, 794, 402, 700, 439, 1128, 339, 96, 980, 1027, 521
Medium	*Acrodon purpureostylus*
Medium	*Trichodiadema pygmaeum*
Medium	*Drosanthemum flavum*
Medium	*Aspalathus burchelliana*
Medium	*Aspalathus calcarata*
Medium	*Aspalathus grobleri*
Medium	*Aspalathus millefolia*
Medium	*Otholobium bowieanum*
Medium	*Otholobium pungens*
Medium	*Polhillia pallens*
Medium	*Treichelia dodii*

Medium	*Hesperantha fibrosa*
Medium	*Freesia fergusoniae*
Medium	*Erica filamentosa*
Medium	*Erica prolata*
Medium	*Sebaea rara*
Medium	*Gnidia ericoides*
Medium	*Osteospermum hispidum var. hispidum*
Medium	*Chrysocoma flava*
Medium	*Stoebe rugulosa*
Medium	*Relhania garnotii*
Medium	*Diosma fallax*
Medium	*Agathosma minuta*
Medium	*Acmadenia laxa*
Medium	*Euchaetis avisylvana*
Medium	*Cliffortia monophylla*
Medium	*Muraltia acerosa*
Medium	*Orthochilus litoralis*
Medium	*Wiborgiella bowieana*
Medium	*Aspalathus lebeckioides*
Medium	*Aspalathus recurva*
Medium	*Romulea jugicola*
Medium	*Elegia squamosa*
Medium	*Diosma passerinoides*

Numbered sensitive species names available upon request.

Below is the list of Rare Plants recorded to date in the Bontebok National Park, but of which only one specimen was specifically observed on the proposed development site.

Species	Status 2009	Status 2007	Status 1996	J	F	M	A	M	J	J	A	S	O	N	D
Cyrtanthus leptosiphon	CR	CR	VU		X	X									
Aspalathus burchelliana	EN	EN	EN	X								X	X	X	X
Aspalathus grobleri	EN	EN	VU			X	X	X	X			X			
Aspalathus smithii	EN	EN	VU		X	X	X								
Protea decurrens	EN	EN	VU						X	X	X	X	X		
Acmadenia laxa	EN	EN	VU									X	X	X	
Stoebe rugulosa	EN	EN	-		X	X	X	X							
Diosma fallax	EN	EN	Ex					X	X			X	X		
Podalyria argentea	EN	EN	R									X	X	X	
Lachenalia physocaulos	EN	EN	I								X	X			
Haworthia marginata	VU	VU	EN	X										X	X
Haworthia helderbergensis var. scabra	LC	VU	VU								X	X			
Haworthia venosa venosa	VU	VU	-											X	X
Gladiolus engysiphon	VU	VU	R			X	X								
Leucadendron linifolium	VU	VU	I									X	X		
Metalasia plicata	EN	VU	K				X	X							
Erica filamentosa	VU	VU	-			X	X	X		X		X	X	X	
Aspalathus incompta	NT	NT	I								X	X			
Phylica velutina	NT	NT	-				X	X	X	X	X				
Sebaea scabra	NT	NT	-									X			
Muraltia pillansii	LC	Rare	-									X	X	X	X
Lapeirousia corymnbosa	Declining	Declining	nt									X	X	X	
Thamnocortus guthrieae	LC	??	R	X	X	X	X	X	X						
Roella bryoides	DDT	DD	K	X	X										X
Gladiolus guthriei	LC	??	nt				X	X	X						
Erica plumosa	LC		I								X	X	X	X	
Cephalophyllum diversiphyllum	NT	exp								X	X				
Gladiolus inflexus	LC	exp	-							X	X				
Muraltia pungens	LC	exp	-										X	X	
Disperis circumflexa var. circuflexa	LC	exp	-								X	X			
Disperis cucullata	NT	exp	-								X	X	X		

LEGEND:

EX - Extinct

EW - Extinct in the Wild

CR - Critically Endangered

EN - Endangered

VU - Vulnerable

NT - Near Threatened

LC - Least Concern

DD - Data Deficient

R - Rare

I - Indeterminate

K - Insufficiently Known

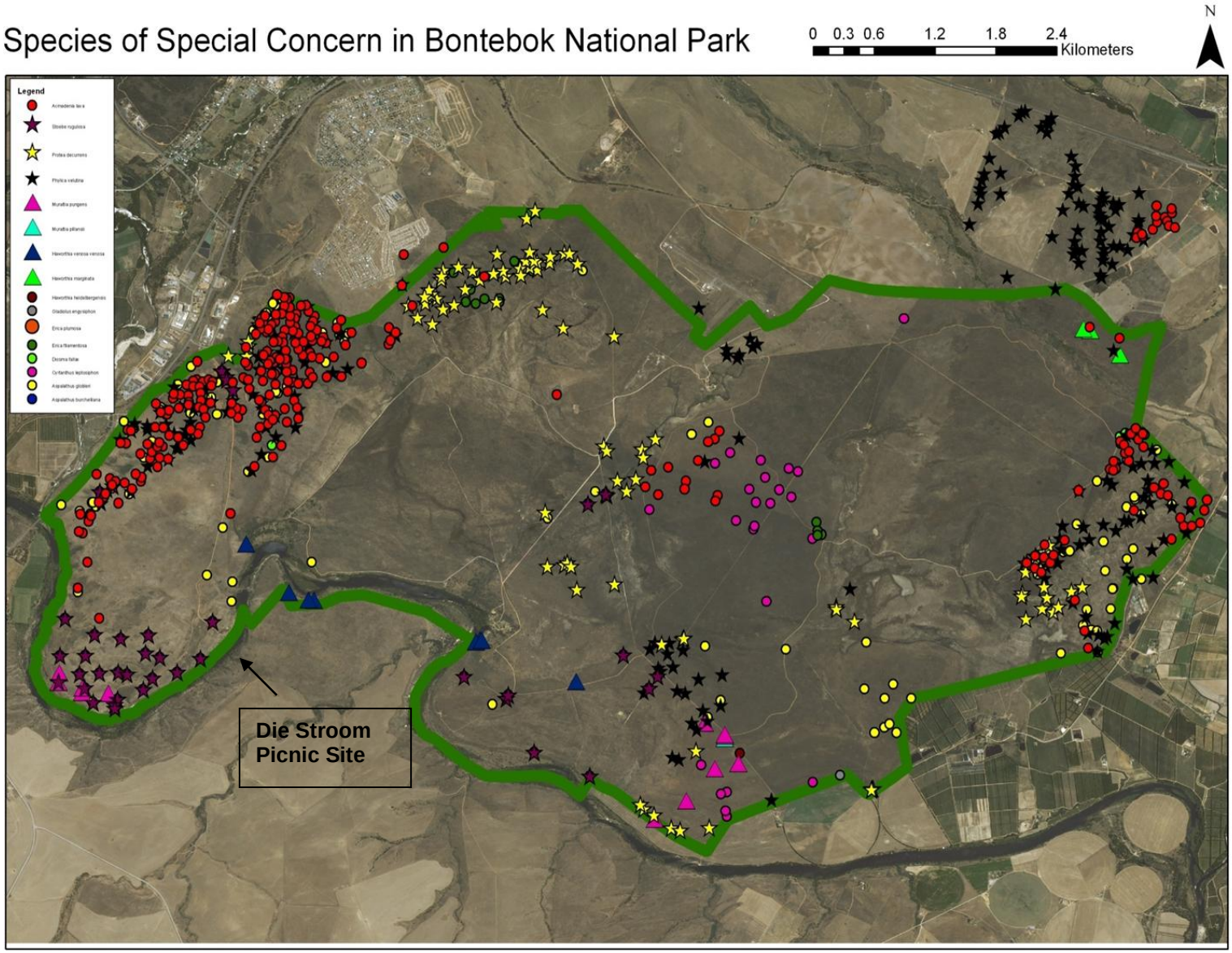
nt - not threatened

EXP – expert concern

1996 status - Hilton-Taylor

2007 status - TSP assessment

2009 status – Red list of SA plants – Raimondo *et el.*



Map 9: Recorded plant species of conservation concern within the Bontebok National Park.
Species of Special Concern in Bontebok National Park (Map and List as Provided by Bontebok National Park Management 22 August 2022)

4.4.2. Provide Evidence (Photographs Or Sound Recordings) Of Each SCC Found Or Observed Within The Study Area

No viable populations of species of conservation concern was specifically recorded on the proposed development site. According to the recorded plant species of concern distribution map for the Bontebok National Park (refer to map 9) the two plant SCCs which are located closest to the development site are *Stoebe rugulosa* and *Aspalathus grobleri*. 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.

4.4.3. Identify The Distribution, Location, Viability And Provide A Detailed Description Of Population Size Of The SCC

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.

4.4.4. Identify The Nature and The Extent Of The Potential Impact Of The Proposed Development On The Population Of The SCC

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.

4.4.5. Determine The Importance Of The Conservation Of The Population Of The SCC Identified Within The Study Area

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.

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

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)*
- *Dicerothamnus 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*

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.

See below most recent photos taken of proposed development site.

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

Photo 4: Proposed new swimming pool and additional picnic and ablution facilities at Die Stroom picninc site. (Photo taken 17/08/2022)

Photo 5: Proposed new swimming pool and additional picnic and ablution facilities at Die Stroom picninc site. (Photo taken 17/08/2022)

Photo 6: Existing road along which new pipelines and cable will be laid. (Photo taken 17/08/2022).

Photo 7: Area where pipelines to new soak away will be laid (Photo taken 17/08/2022)

Photo 8: Section through veld where new soakaway pipelines will be laid along existing soakaway pipeline to the new soakaway. (Photo taken 17/08/2023).

Photo 9: Section through veld where new soakaway pipelines will be laid along existing soakaway pipeline to the new soakaway. (Photo taken 17/08/2022).

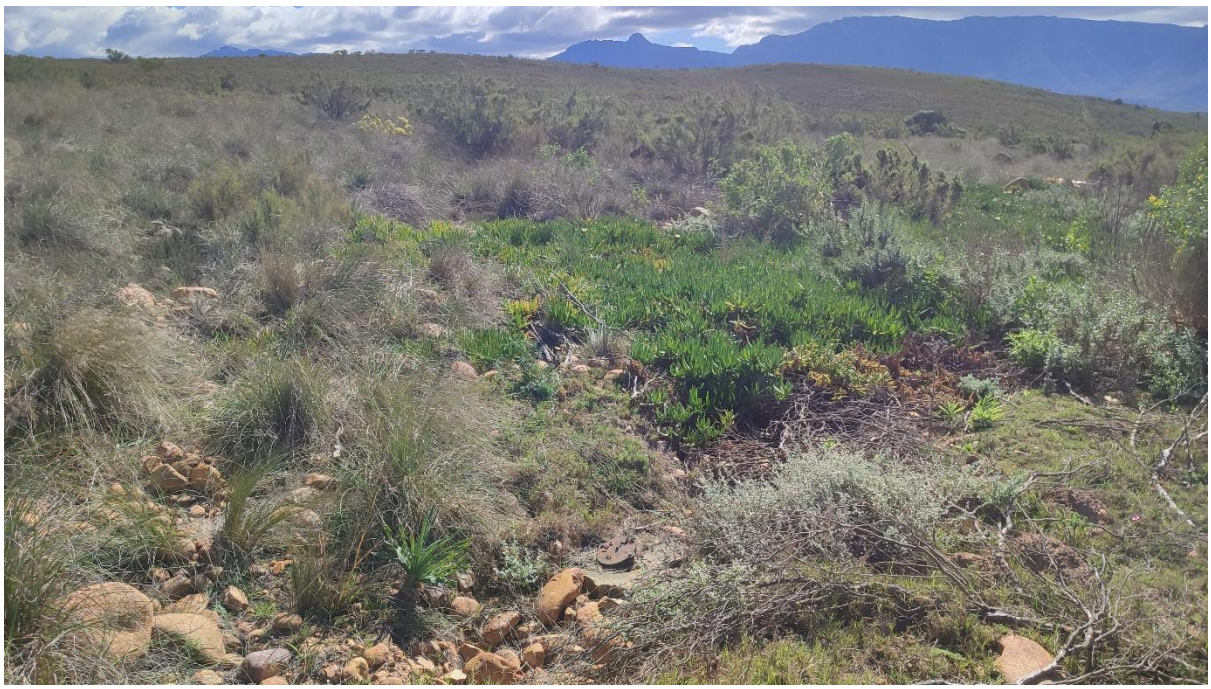


Photo 10: Existing soakaway where new soak away will be built adjacent to the existing soakaway (Photo taken 17/08/2022)

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

Photo 12: Access road to picnic site and non-perennial drainage line along which additional parking bays are proposed. (photo taken 17/08/2022)

Photo 13: Access road to picnic site along which additional parking bays are proposed. (photo taken 17/08/2022)

4.4.7. Determine The Potential Impact Of The Proposed Development On The Habitat Of The SCC Located Within The Study Area

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.

4.4.8. Include A Review Of Relevant Literature On The Population Size Of The SCC, The Conservation Interventions As Well As Any National Or Provincial Species Management Plans For The SCC

The proposed development site falls within the area of the Bontebok National Park which supports Swellendam Silcrete Fynbos.

Biome	Fynbos
Bioregion	F08 East Coast Renosterveld Bioregion
Vegetation type	FFc 1 Swellendam Silcrete Fynbos
Vegetation and landscape features	Mainly undulating hills on the coastal forelands, the remains of the old African surface. Structurally it is a medium tall evergreen shrubland or grassland. Predominantly asteraceous fynbos, but graminoid fynbos on summits and northern slopes where disturbed. Proteoid fynbos occurs on southern slopes and ericaceous fynbos is found in wetter habitats. Afrotemperate forest occurs in firesafe alluvial areas, such as along perennial rivers. It is uncertain whether proteoid fynbos, renosterveld or thicket was the dominant type in some of the eastern plateaus—it has all been converted to pasture.
Distribution vs SA	Western Cape Province: Relatively large patches on southern foothills of the Langeberg from around Swellendam to north of Dekriet/Soutpan (between Riversdale and Albertinia), becoming highly fragmented between Albertinia and the southern side of Robinson Pass to around Molenrivier (north of Klein- Brak River). Altitude 100–400 m.
Quantity Plant species Endemic to Bontebok National Park	1 succulent shrub, 1 Tall shrub, 7 low shrubs, 4 Geophytic Herbs & 1 graminoid
Conservation value sensu Vegmap	Endangered
Transformed	More than 40% already transformed for cultivation (pastures) and pine plantations Alien Acacia cyclops occurs in places. Erosion generally moderate and very low, but also high in some places.
Remarks	This little known vegetation unit shows floristic features of both fynbos and of renosterveld. Overgrazing converts this to graminoid fynbos on the northern slopes and to a species- poor renosterveld elsewhere. It appears to be easily converted to pasture by frequent burning and liming.
Conservation Status	The Swellendam Silcrete Fynbos has a conservation target of 30% meaning that 30% of the original extent of this vegetation type needs be protected in order to capture 75% of the species occurring in it. Only 4% is statutorily conserved, largely in the Bontebok National Park.

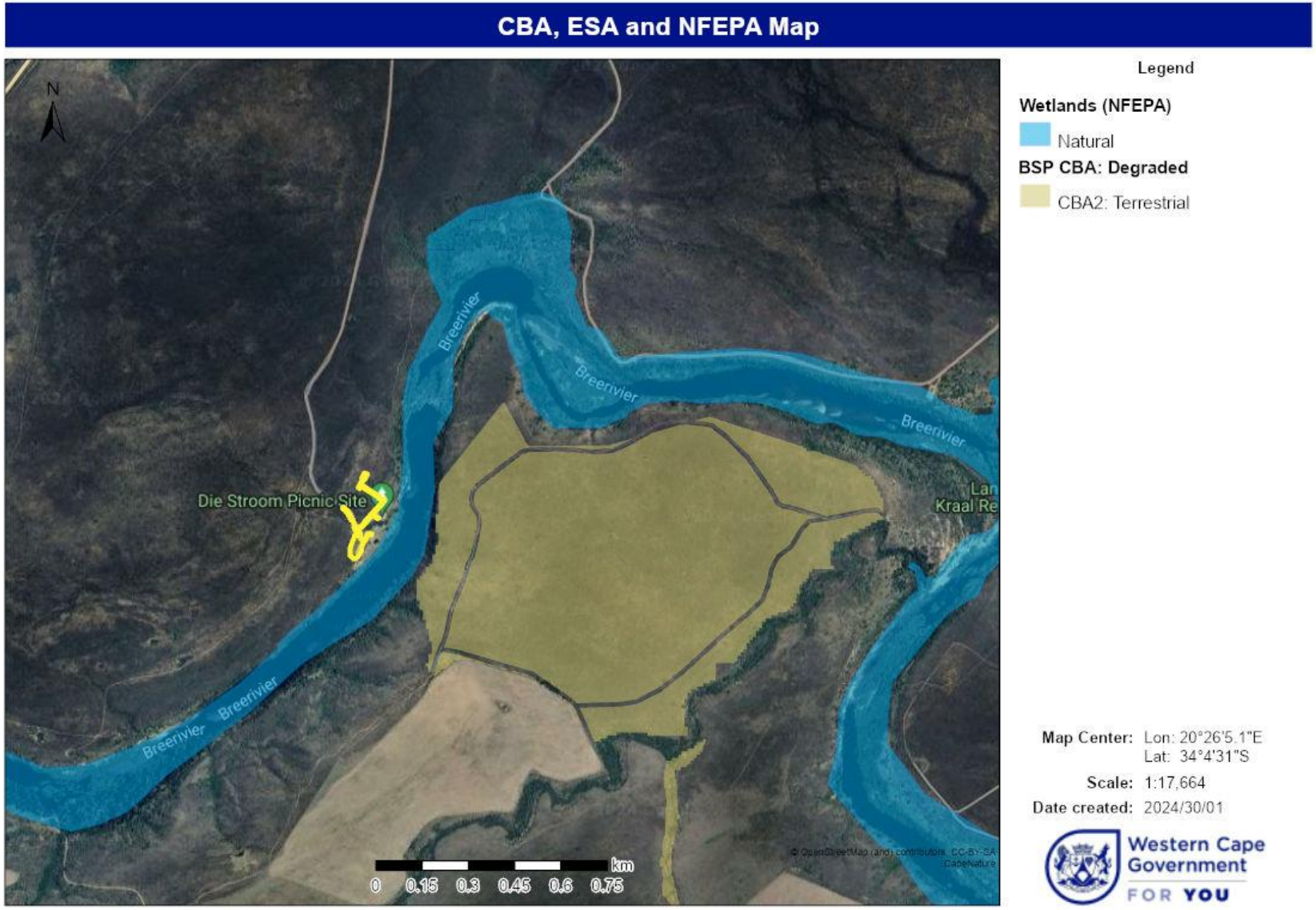
4.4.9. Identify Any Dynamic Ecological Processes Occurring Within The Broader Landscape That Might Be Disrupted By The Development And Result In Negative Impact On The Identified SCC

The 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 ±0.2ha 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.

4.4.10. Identify Any Potential Impact Of Ecological Connectivity In Relation To The Broader Landscape

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 ±0.2ha 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.

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.



Map 10: SANBI CBA, ESA and NFEPA map of Die Stroom picnic site and surrounds in the Bontebok National Park.

4.4.11. Discuss The Presence Or Likelihood Of Additional SCC Including Threatened Species Not Identified By The Screening Tool

Refer to 4.4.1 above. No other plant SCC were recorded on the proposed development areas during the time of the surveys except for one *Aspalathus burchelliana* next to the road edge within the proposed development area, there is however always a likelihood that there may be plant SCC within the proposed 0.44ha development area not recorded due to not all plants i.e. geophytes flowering during the times of the surveys. However, the site is not very big and was surveyed during different times of the year therefore it is not expected that any significant populations of plant SCC was missed during the surveys. Refer to 4.4.6 for a list of indigenous vegetation species recorded within the relevant remaining indigenous vegetation areas.

4.4.12. Identify Any Alternative Development Footprints Within The Preferred Site Which Would Be Of "Low" Or "Medium" Sensitivity

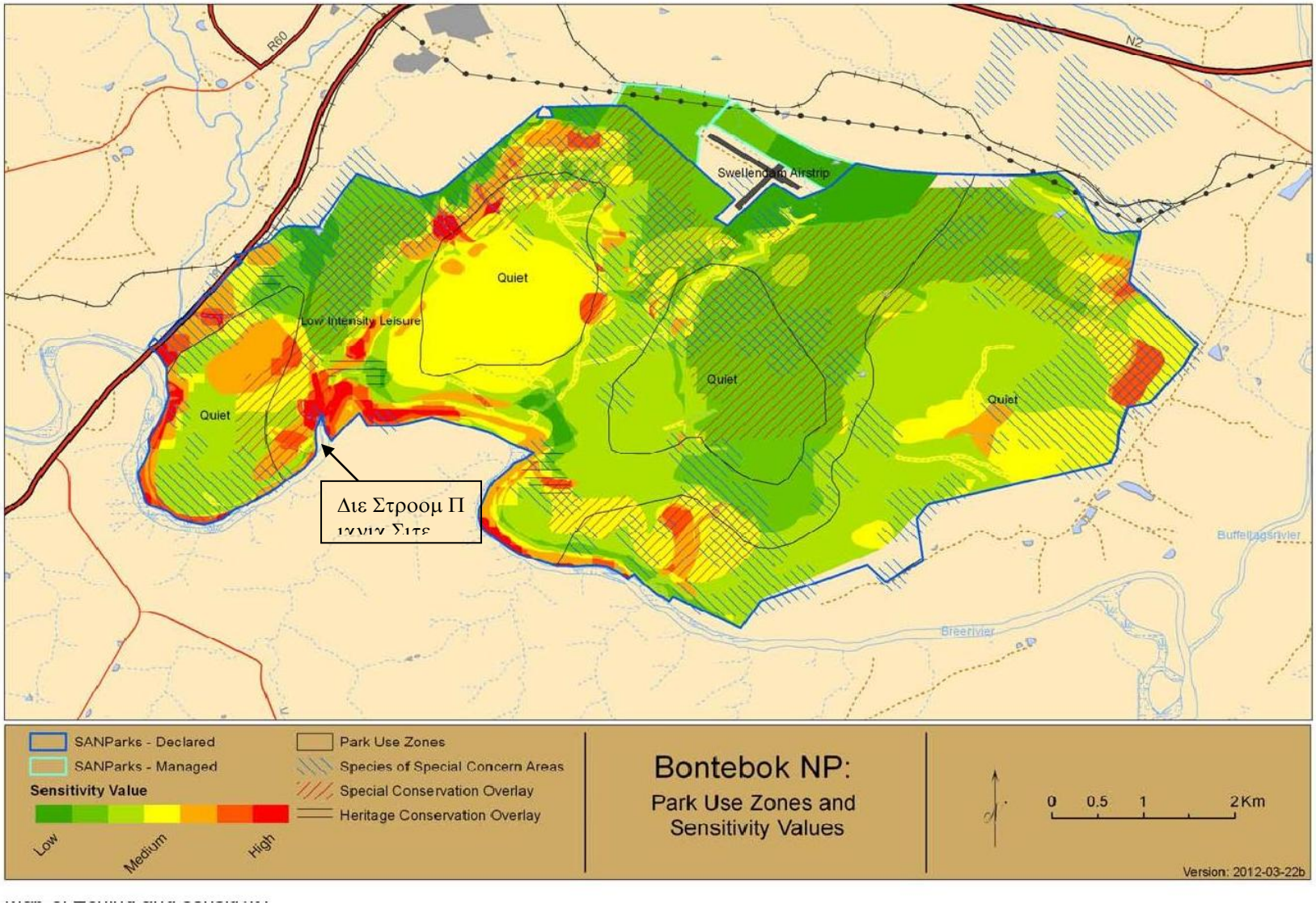
There is no reasonable or feasible alternative that could be proposed to accommodate the proposed developments somewhere else on the property with a lower sensitivity as the nature of the development is to enhance the existing Die Stroom picnic site and incorporate existing facilities within the proposed development i.e. existing parking lots and cleared areas. The proposed development was also designed to be located outside of the 1:100 year floodline area and infrastructure such as sewer, water and electrical lines were placed as far as possible along existing infrastructure routes. The proposed development footprint is located within Medium to Low Plant Sensitivity areas which cannot be avoided should the development continue at the Die Stroom picnic site within the Bontebok National Park as the proposed development is site specific and related to expansion and upgrades of existing picnic facilities already earmarked for such developments in accordance with the objectives of the park's management plan.

4.4.13 Site Sensitivity Assessment

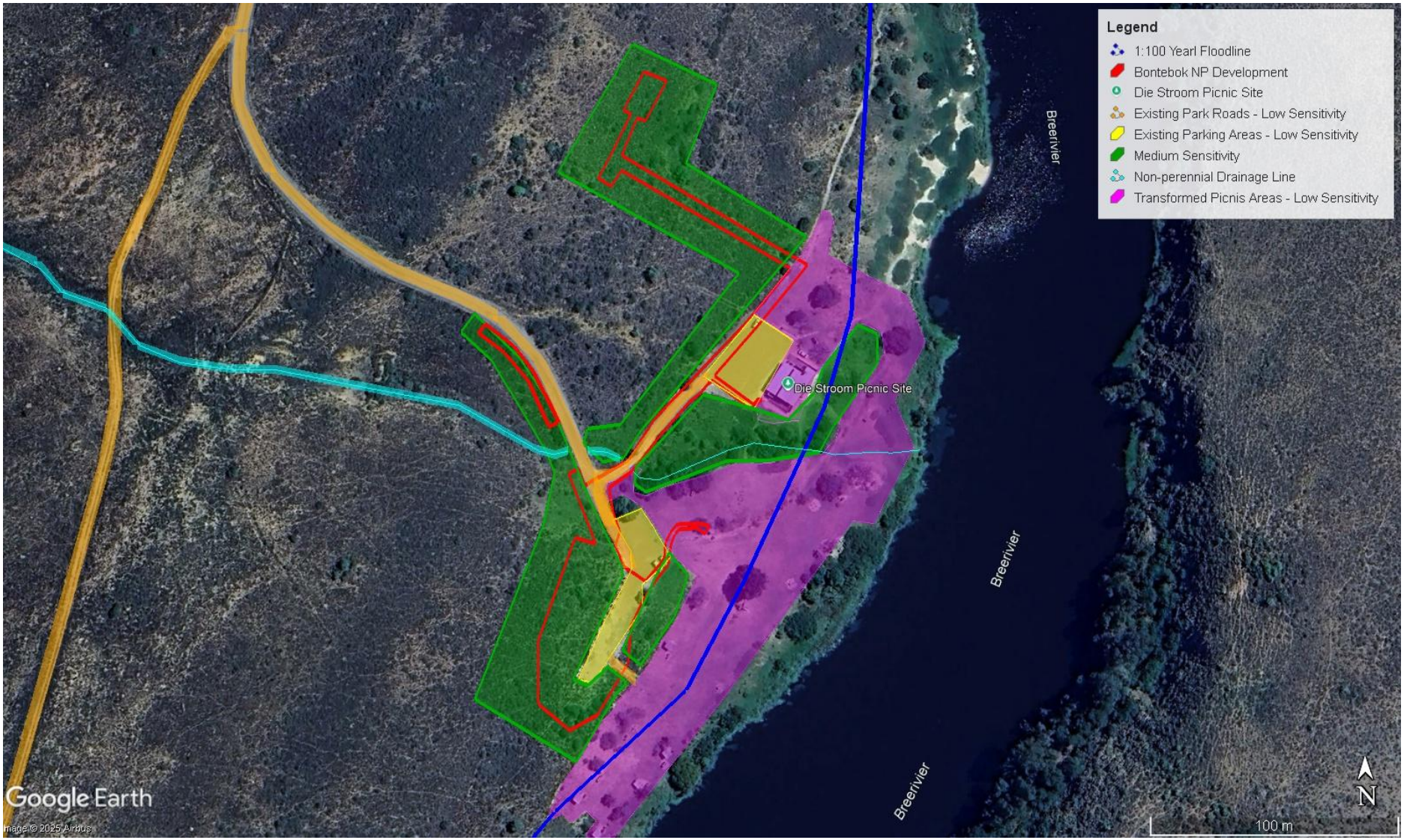
The plant species sensitivity map for the site is depicted below.

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 is of Low sensitivity.

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.



Map 11: Park Use Zones and Sensitivity Values mapped for the Bontebok National Park and Die Stroom picnic site and surrounds.



Map 12: Plant 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 ±10m 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.

5. PLANT SPECIES IMPACT ASSESSMENT

5.1. 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 National Environmental Management: Biodiversity Act (2004) as well as Brownlie (2005).

5.2. 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.

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

PLANT SPECIES 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 Without Mitigation	With Mitigation			No-Go Alternative Without Mitigation	With Mitigation
Extent	1	1			Not Applicable (No construction activities to take place during the No-Go Alternative)	
Duration	5	5				
Magnitude	2	1				
Probability	5	4				
Significance	40 - Medium	28 - Low				
Status	Medium	Low Negative				

	Negative Significance without Mitigation	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.				

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 Without Mitigation	Layout Alternative 1 With Mitigation	No-Go Alternative Without Mitigation	No-Go Alternative With Mitigation

Extent	1	1			Not Applicable (No construction activities to take place during the No-Go Alternative)
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.				

(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			Not Applicable (No construction activities to	
Duration	5	5				

Magnitude	4	2			take place during the No-Go Alternative)
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.				

(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 plant sensitivity 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 safter 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 vegetation impacts due to uncontrolled human activities in the long term.

6. CONCLUSION AND RECOMMENDATIONS

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.

Expected plant species/vegetation impacts of the proposed development can be summarised as below and will include:

- A total area of ±0.44ha will be impacted upon/cleared during the initial construction phase, however only ±0.2ha 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 ±0.2ha 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.
- 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. Therefore, the potential operational impacts on the indigenous vegetation 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 plant species 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.
- 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.
- 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.

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 indigenous vegetation or significant net loss thereof.

7. REFERENCES

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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:	• 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	• 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	• 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	1992: South African National Parks. Student at Bontebok National Park with management and monitoring actions related to the Breede River. 1993 -1998: Free State Nature Conservation. Ecological management and monitoring actions related to the Gariep Dam, Orange and Caledon Rivers. 1998 -2006: CapeNature. Ecological management and monitoring actions related to the Berg River Estuary, Verlorenvlei, Lamberts bay’s Jackalsvlei, Wadrift 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. 2006 to date: Cape Lowland Environmental Services, Eco Impact Legal Consultant and Enviro-EAP. Ecological (Freshwater and aquatic) Specialist input, assessment, monitoring and reports.
Publications and assessment reports	Just to name a few. Was involved in many Ecological Assessments, monitoring and inputs in EIA applications. • 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 Photvoltaic 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.

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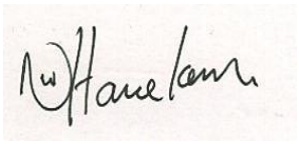
CERTIFICATION

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



Nicolaas Hanekom (SACNASP registration number 004415.

SACNASP

South African Council for Natural Scientific Professions

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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