PLANT SPECIES IMPACT ASSESSMENT

FOR THE

PROPOSED ROCK AND GRAVEL MINING RIGHT APPLICTION ON PORTION 46 (A PORTION OF PORTION 23) OF THE FARM BULLELS FONTEIN 435, ALBERTINIA

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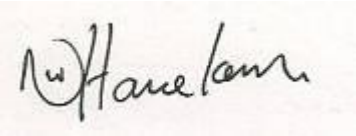
NOVEMBER 2025

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
- 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) 004415 **21 November 2025**

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

ENVIROEAP (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	**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
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

An applicant intending to undertake an activity identified in the Scope of this Protocol, on a site identified as being of "high sensitivity" for plant species on the national web based environmental screening tool must submit a plant species impact assessment report. Where the information gathered from the Initial Site Sensitivity Verification and the specialist assessment differs from the designation of "very high, high or medium" plant species sensitivity from the national web based environmental screening tool and it is found to be of a "low" sensitivity, then a plant species impact assessment is not required. Should this apply, a plant species Compliance Statement is to be provided.

The Department of Environmental Affairs screening report from the national web based environmental screening tool reported a "medium" plant species sensitivity. A plant species impact assessment was conducted. This report presents the findings of the Plant Species Impact Assessment that was prepared by Nicolaas Hanekom as part of the proposed development.

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. Methodology Terms of Reference

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

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[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

- 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);
- 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.

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[2] Available athttps://bgis.sanbi.org/
[3] The preferred platform is iNaturalist.org but any other national or international virtual museum
[4] the ability to survive and reproduce in the long term
[5] Undescribed species are to be assessed as “High Sensitivity”

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;
- 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.

[6] Species Environmental Assessment Guideline

- 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 habitat within this region is between August and end October months in terms of plant species. The sampling and analysis of the site was conducted on 10 June 2025, 29 September 2025 and 18 October 2025 during the optimum season and provides suitable data and results to present an informed decision on the species.

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

1.6. Assumptions and limitations

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

1.7. Source of Information

This assessment was undertaken utilising:
- 1:50 000 topographic mapping sourced from the Surveyor General's office;
- Aerial imagery sourced from Google Earth.
- Aerial imagery sourced from ESRI.
- National Vegetation Map (South African National Biodiversity Institute (2006-2018). The Vegetation Map of South Africa, Lesotho and Swaziland, Mucina, L., Rutherford, M.C. and Powrie, L.W. (Editors), Online, http://bgis.sanbi.org/Projects/Detail/186, Version 2018.).
- Threatened Ecosystem data was extracted from the Revised National List of Threatened Ecosystems 2022.
- 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).
- Important catchments and protected areas expansion areas were extracted from the National Protected Areas Expansion Strategy 2008 (NPAES).
- CapeNature. 2024. 2023 Western Cape Biodiversity Spatial Plan and Guidelines Overview V2.0. Unpublished Report.

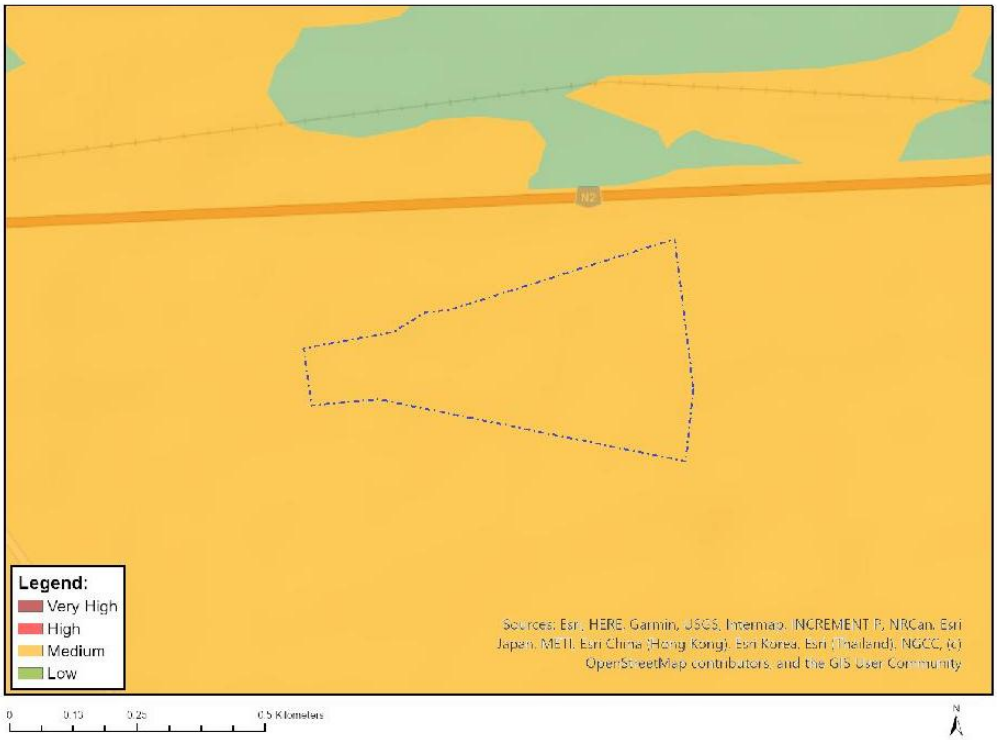
In addition, use was made of the following data:

- SANBI veld types data; and
- Literature as referenced

1.8. Site Visit

The site survey was conducted on 10 June 2025, 29 September 2025 and 18 October 2025. The sampling and analysis of the site during the optimal season provides suitable data and results to present an informed decision on the local 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.

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	

Figure 1: Plant species theme sensitivity and potential sensitivity features as per the environmental screen tool report for existing and proposed mining expansion area on farm Buffelsfontein.

1.9. Sensitivity Mapping and Assessment (Site Ecological Importance)[7]

Methodology

Where the site-specific assessment produces lower or higher SEI classification than the 'environmental sensitivity' output of the screening tool for that particular site, it is the responsibility of the specialist to provide a clear and defensible justification for the difference. SEI is considered to be a function of the biodiversity importance (BI) of the receptor (e.g. species of conservation concern, the vegetation/fauna community or habitat type present on the site and its resilience to impacts (receptor resilience [RR]) as follows:

$$SEI = BI + RR$$

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

$$BI = CI + FI$$

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

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

These criteria are defined as follows:
IUCN threatened and Near Threatened species (CR, EN, VU and NT) are defined as either the global or national assessments of the risk of extinction as evaluated by a dedicated panel of species specialists according to the criteria of the International Union for The Conservation of Nature (www.iucnredlist.org). Where the global and national assessments differ for the same taxon, the national evaluation of status should be used in calculating SEI unless the global assessment is both more recent and of a more threatened category. It is important to note that the specialist is required to have a firm understanding of the IUCN Red List

[7] South African National Biodiversity Institute (SANBI). 2020. *Species Environmental Assessment Guideline. Guidelines for the implementation of the Terrestrial Fauna and Terrestrial Flora Species Protocols for environmental impact assessments in South Africa.* South African National Biodiversity Institute, Pretoria. Version 3.1. 2022.

Categories and Criteria (IUCN 2012) in order to appropriately apply these for the evaluation of SEI. This criterion can be assessed using confirmed occurrences of species or the suitability of the habitat to support these species.

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

Range-restricted species – the presence of terrestrial flora, vertebrate and invertebrate fauna with a global population extent of occurrence (EOO) of 10 000 km^2 or less.

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

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

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

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

Fulfilling criteria to evaluate CI do not rely on a single specific threshold for each of the above defining characteristics but can act in combination or in isolation, providing a more robust evaluation of CI as per table below.

Conservation importance	**Fulfilling criteria**
Very high	Confirmed or highly likely occurrence of CR, EN, VU or Extremely Rare or Critically Rare species that have a global EOO of < 10 km^2. Any area of natural habitat of a CR ecosystem type or large area (> 0.1% of the total ecosystem type extent) of natural

	habitat of EN ecosystem type. Globally significant populations of congregatory species (> 10% of global population).
High	Confirmed or highly likely occurrence of CR, EN, VU species that have a global EOO of > 10 km^2. IUCN threatened species (CR, EN, VU) must be listed under any criterion other than A, if listed as threatened only under Criterion A, include if there are less than 10 locations or < 10 000 mature individuals remaining. Small area (> 0.01% but < 0.1% of the total ecosystem type extent) of natural habitat of EN ecosystem type or large area (> 0.1%) of natural habitat of VU ecosystem type. Presence of Rare species. Globally significant populations of congregatory species (> 1% but < 10% of global population).
Medium	Confirmed or highly likely occurrence of populations of NT species, threatened species (CR, EN, VU) listed under Criterion A only and which have more than 10 locations or more than 10 000 mature individuals. Any area of natural habitat of threatened ecosystem type with status of VU. Presence of range-restricted species. > 50% of receptor contains natural habitat with potential to support SCC.
Low	No confirmed or highly likely populations of SCC. No confirmed or highly likely populations of range-restricted species. < 50% of receptor contains natural habitat with limited potential to support SCC.
Very low	No confirmed and highly unlikely populations of SCC. No confirmed and highly unlikely populations of range-restricted species. No natural habitat remaining.

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

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

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

These criteria can be defined as:

- Connectivity to other natural areas – connectivity, which can also be measured conversely as the degree of habitat fragmentation, refers to how connected habitat patches are to each other, which has a significant influence on numerous ecological process, such as migration and dispersal opportunities of biota and therefore genetic exchange between populations. Connectivity to other similar habitats becomes more important as the remaining intact and functional area of a habitat decreases, mainly because population sizes decrease and are therefore at greater risk from ecological perturbations and inbreeding effects. The degree of connectivity between habitat patches varies greatly with the dispersal ability of the taxon or taxon group (e.g. fossorial reptiles) in question.

- Degree of current persistent negative ecological impacts – persistent negative impacts such as uncontrolled spread of alien and invasive flora effectively decreases both the remaining intact area and ecosystem functioning of a particular habitat.

- Remaining intact and functional area – the proportion of the receptor that supports natural habitat with intact ecological processes – small areas are less likely to withstand ecological degradation compared to large areas, and the latter are therefore better able to maintain structure and function allowing for intact ecological processes.

$$SEI = BI + RR$$

Recalling that biodiversity importance (BI) is a function of conservation importance (CI) and the functional integrity (FI) of a receptor, BI can be derived from a simple matrix of CI and FI as per table below.

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

Receptor resilience (RR) is defined here as:
'The intrinsic capacity of the receptor to resist major damage from disturbance and/or to recover to its original state with limited or no human intervention.'

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

Resilience	**Fulfilling criteria**
Very high	Habitat that can recover rapidly (~ less than 5 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a very high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a very high likelihood of returning to a site once the disturbance or impact has been removed.
High	Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.
Medium	Will recover slowly (~ more than 10 years) to restore > 75% of the

	original species composition and functionality of the receptor functionality, or species that have a moderate likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a moderate likelihood of returning to a site once the disturbance or impact has been removed.
Low	Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a low likelihood of returning to a site once the disturbance or impact has been removed.
Very low	Habitat that is unable to recover from major impacts, or species that are unlikely to remain at a site even when a disturbance or impact is occurring, or species that are unlikely to return to a site once the disturbance or impact has been removed.

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

SEI should be described in the above manner for each impact receptor within the PAOI and clearly mapped in relation to the proposed development activities and infrastructure. Interpretation of SEI in the context of the proposed development activities as per table below must be provided by the specialist. It is very important to note that SEI is specific to the proposed development activities and cannot be meaningfully compared between different proposed projects with different associated activities on the same spatial location. However, SEI for the same proposed development with multiple alternative layouts and/or locations may be compared within the same study.

SEI = BI + RR

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

Guidelines for interpreting SEI in the context of the proposed development activities.

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

SEI RESULTS FOR 8ha PROPOSED MINING EXPANSION AREA NEXT TO EXISTNG 5ha MINING PERMIT AREA:

Habitat	Conservation importance	Functional integrity	Receptor resilience	Site Ecological Importance (BI)
Albertina Sand Fynbos	High Small area (> 0.01% but < 0.1% of the total ecosystem type extent) of natural habitat of EN ecosystem type mapped.	High Small area inside an incorrectly mapped CBA area. The vegetation structure and habitat on site is totally transformed and does not represent Alterntinia Sand Fynbos	Very high Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a low likelihood of returning to a site once the disturbance or impact has been removed. The vegetation structure and habitat on site	Low (BI = (High)

			is totally transformed and does not represent Albertinia Sand Fynbos	

Habitat	Conservation importance	Functional integrity	Receptor resilience	Site Ecological Importance (BI)
North Langeberg Sandstone	Low	Very high	High	Low
	No confirmed or highly likely populations of SCC. No confirmed or highly likely populations of range-restricted species. < 50% of receptor contains natural habitat with limited potential to support SCC. Least Concern ecosystem type mapped. No CBA mapped.	Very large intact area for any conservation status of ecosystem type. Good habitat connectivity, with potentially functional ecological corridors	Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a high likelihood of returning to a site once the disturbance or impact has been removed.	(BI = Medium)

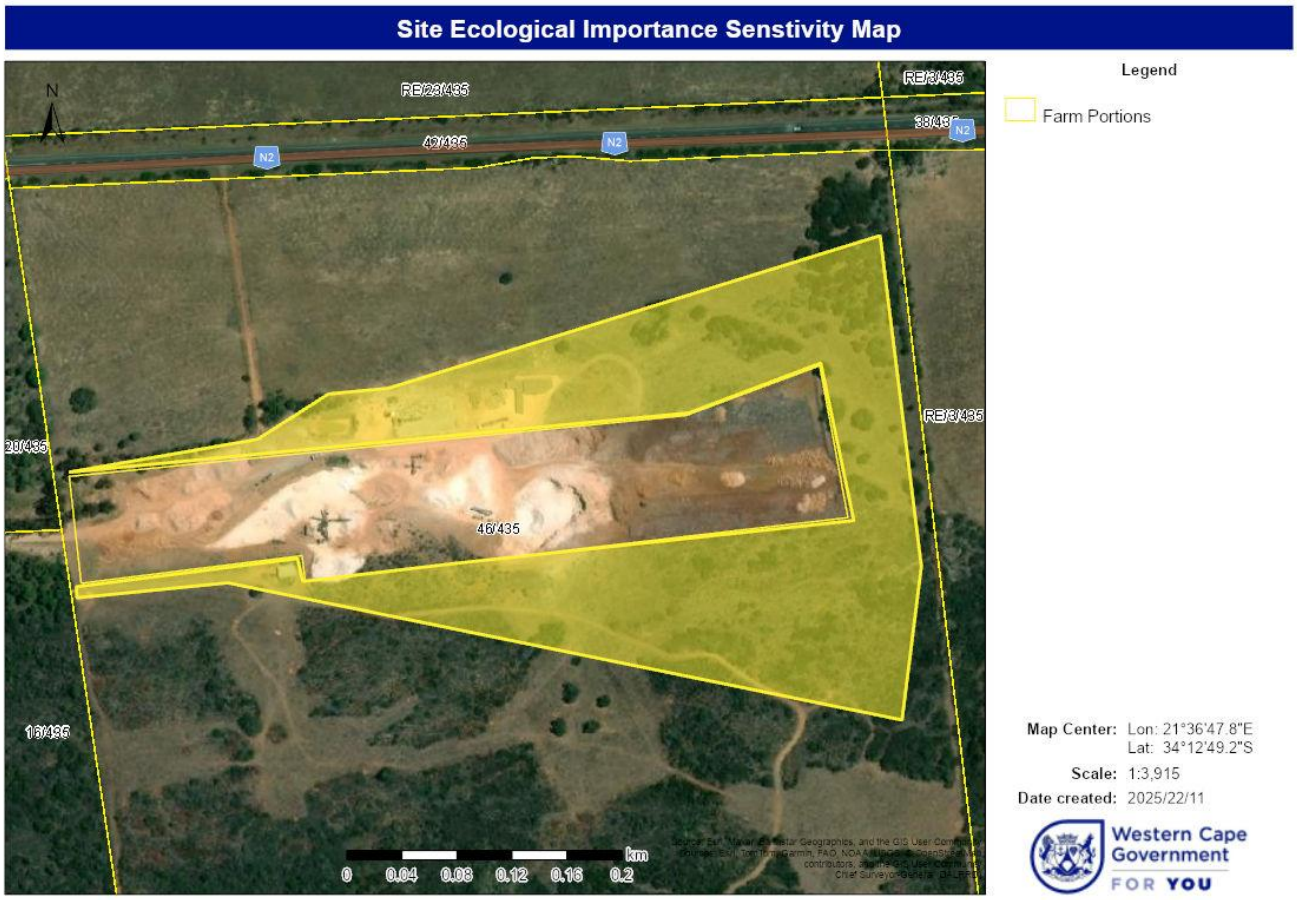


Figure 2: Site Sensitivity Map for existing 5ha mining permit area and proposed 8ha mining expansion area on Farm Buffelsfontein. Yellow- Low Sensitivity.

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.

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 protected trees were recorded within the proposed mining expansion areas nor its immediate surrounds.

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.

Notably most listed alien invasive species are propagated and driven by the disturbance of land during and following construction. The planting and management of exotic plant species on site, if and where required, is governed by the Alien and Invasive Species (AIS) regulations. The main invasive species recorded on the site and immediate surround is *Acacia mearnsii, Eucalyptys, Pine trees and Acacia saligna*. By law if this species occurs on a property the landowner is obligated to implement alien vegetation clearing programme to control and eventually completely eradicate these species from the applicable property.

3. DESCRIPTION OF PROJECT ASPECTS RELEVANT TO PLANT SPECIES FEATURES

Project and site description: The expansion of existing rock and gravel mining activities are proposed on Portion 46 (a Portion of Portion 23) of the Farm Buffels Fontein 435 near Albertinia. The existing mining site is situated near the town of Albertinia in the Western Cape, just south of the N2 highway from Cape Town to Mossel Bay. There is an existing quarry on the property where expansion of the open pit mine is envisaged. The existing quarry will be central in the expanded open mine and will be one of the blocks to be mined further. Hard sandstone rock was encountered at shallow depth in the existing quarry, hence the need for a crushing plant to process the excavated material on site. The existing quarry operates under the 5ha mining permit WC30/5/1/3/2/10267MP issued 16 Aug 2021 and the 5 year mining permit period ends 16 August 2026 after which the applicant intends to apply for

the existing mining permit area to be included in the adjacent 8ha mining right area currently being applied for.

Mining is conducted by making use of a front-end loader and excavator to excavate the rock and gravel. Topsoil is removed first for rehabilitation purposes. Blasting is used for the removal of rocks as and if required. The methods required for mining include blasting operations, drilling operations and manual digging pile operations. In actual production, it is decided by management which operating method to use based on the hardness of the raw materials at the specific site. If the raw rock is hard, blasting and drilling are performed; if the rock is soft, it will be stripped directly with an excavator. The excavated materials are hauled to the crushing and screening plants located on site where it is crushed, screened and stockpiled ready for dispatch. Mined materials are also used at the brickyard on site to manufacture pavers.

Mining excavations are to be conducted at a maximum depth of 31-63m bgl ("below ground level") and not below groundwater level. If groundwater level is reached above 31-63m bgl excavations will not continue further. To date mining activities on adjacent area has not reached groundwater level. The proposed additional pit mine will eventually cover an area of approximately 6ha and once the existing permit area is included a total of 9ha. The natural slope of the site is approximately 1:50 (2%) down from east to west, and 1:7 (14%) up from north to south. Due to the steep north-south slope it is envisaged that the mine will be approximately 63m deep at the southern face, and 31m deep at the northern face. Rehabilitation of the 9ha open pit mine area will consist of stabilising the slopes as the mine continues to prevent erosion, but due to the large amount of materials that will be removed it will not be possible to backfill and rehabilitate the mined area with vegetation and therefore the excavated area will remain a stabilised open-pit. Once mining operations on the property cease the 4ha falling outside of the remaining 9ha open-pit is to be rehabilitated to its surrounding and previous status quo of *Cynadon* grass grazing area with scattered indigenous vegetation used for livestock grazing.

Mining operations are to be executed from Monday to Saturday from 07:00am to 17:00pm.

Once the existing 5ha Mining Permit area is included in the Proposed 8ha Mining Right Area the 13ha mining right area will consist of the following (also refer to Mine Layout Map):	
9ha Open pit mine area	Additional/future mining area. Blocks A-F on 6.3ha approximately 1ha per mine block (5. on layout)
	2.7ha existing mining permit area currently being mined (7. and 8. on layout)

4ha Other mining activities area	Existing office and ablution (1. on layout)
	Existing shed 12m x 20m (2. on layout)
	0.7ha existing brickyard and pavers production area (3. on layout)
	Existing internal roads (4. on layout)
	Existing crusher and screening plant (6. on layout)
	Existing stockpile and Crush Material (9. on layout)

The N2 national road lies along the northern border of the property and the site was previously used for heavy livestock grazing therefore Cynodon grass species and woody alien trees have encroached on most of the site, especially along the lower lying areas. At the moment there are still horses grazing on the lower lying areas in-between the N2 national road and existing fenced-off 5ha mining permit area.

The proposed additional mining area of 8ha located immediately north, east and south of the existing 5ha mining permit area was also historically brush cut throughout the years and this has increased the spread of the woody alien vegetation infestation like *Acaia mearnsii, Acacia saligna*, *Acacia cyclops* and pine trees. In-between the woody alien trees there are still remnants of indigenous vegetation species however it is evident from the site investigation that due to disturbances there are limited diversity in the remaining indigenous vegetation species.

According to CapeNature (2024) 2023 Western Cape Biodiversity Spatial Plan and Guidelines the lower lying northern and eastern proposed expansion areas have been mapped as Terrestrial CBA 1 area and the higher lying southern expansion areas as Other Natural Area. The southern slope at the foothill of the Hoogmoed se Berg has returning indigenous vegetation as part of the North Langeberg Sandstone Fynbos (Least Concern) vegetation type. The VEGMAP of South Africa 2024 shows Albertina Sand Fynbos (Endangered) mapped for the lower lying areas, however the lower lying areas as previously mentioned have been significantly transformed.

No mapped natural watercourses or wetlands are located on the existing or proposed mining expansion areas. There is a mapped Aquatic ESA and NFEPA wetland as part of a non-perennial drainage line 35m from the proposed mining expansion area along the southeastern edge of the property.

The surveyed site is not within a Protected Area, nor within 5 kilometres of a Protected Area, and not within 10 kilometres of a World Heritage Site.

4. DESCRIPTION OF THE AFFECTED ENVIRONMENT.

4.1. Locality

The expansion of existing rock and gravel mining activities are proposed on Portion 46 (a Portion of Portion 23) of the Farm Buffels Fontein 435 near Albertinia. The existing mining site is situated near the town of Albertinia in the Western Cape, just south of the N2 highway from Cape Town to Mossel Bay. There is an existing 5ha quarry area on the property where expansion of the open pit mine is envisaged. The existing quarry will be central in the expanded open mine and will be one of the blocks to be mined further.

The surrounding land use is predominantly mixed to small scale farming units with the grazing of sheep predominating. The agricultural production of the area is not considered high because of the acid, stony soils. On the opposite side of the N2 is clay mining operations and the harvesting of aloe sap which is processed at a factory diagonally opposite the site. Directly south of the site is the Hoogmoed se Berg which reaches a height of 420m with remaining natural vegetation relatively undisturbed on the higher lying areas, but with significant alien tree infestations.

Figure 3.1: Locality of Albertinia in the Western Cape.

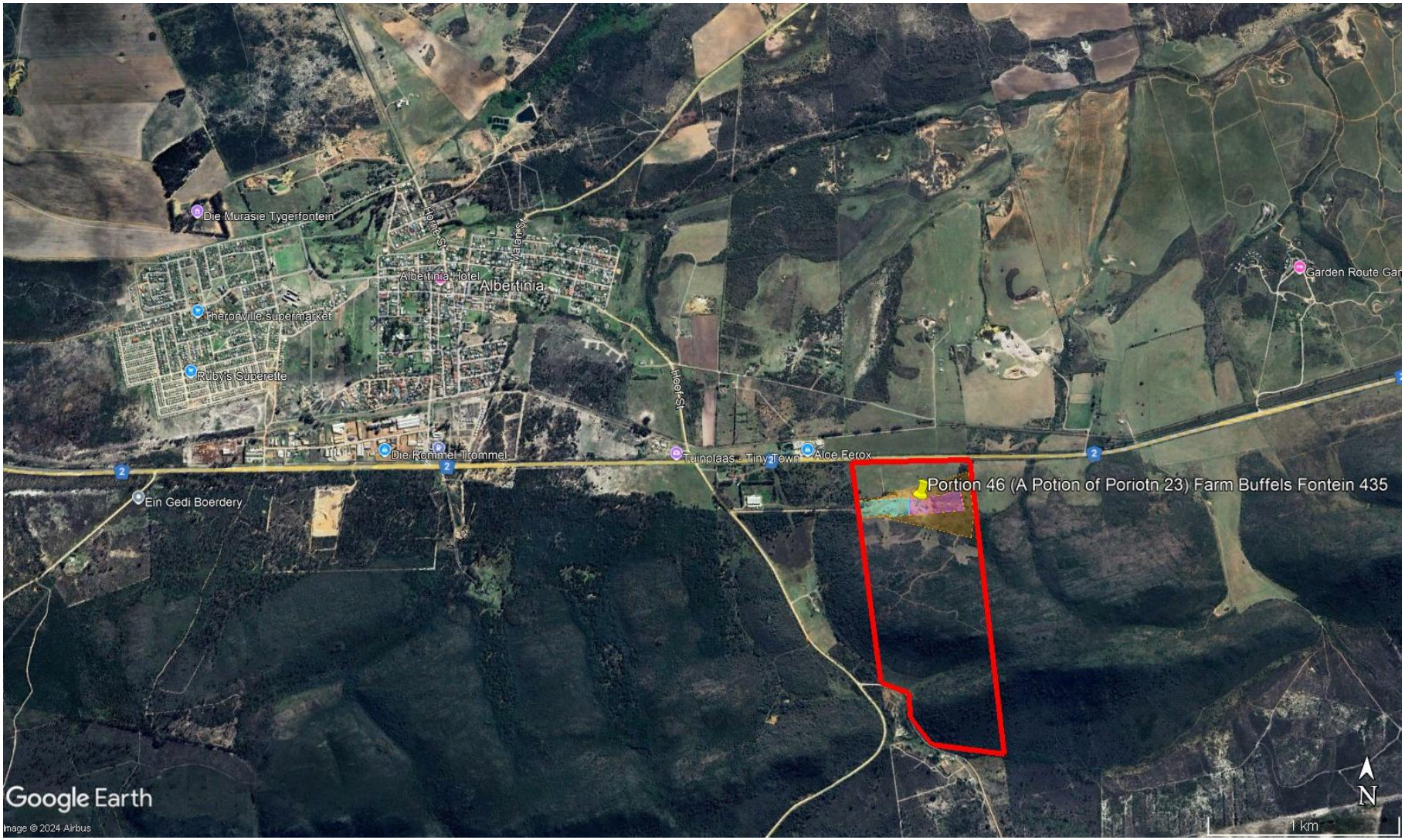


Figure 3.2: Locality of Portion 46 (A Portion of Portion 23) of Farm Buffels Fontein 435 near Albertinia along the N2 national road

4.2. Topography

Due to the site lying on the northern foothill of the Hoogmoed se Berg it has a downward slope from south to north towards the N2 national road. The slopes along the existing mining permit area of 5ha have been previously excavated therefore its surface is relatively flat with a quarry and steep slopes along the southern edge at the foothills of Hoogmoed se Berg. The elevation of the existing and proposed mining expansion areas ranges from 260amsl in the south to 220amsl in the north.

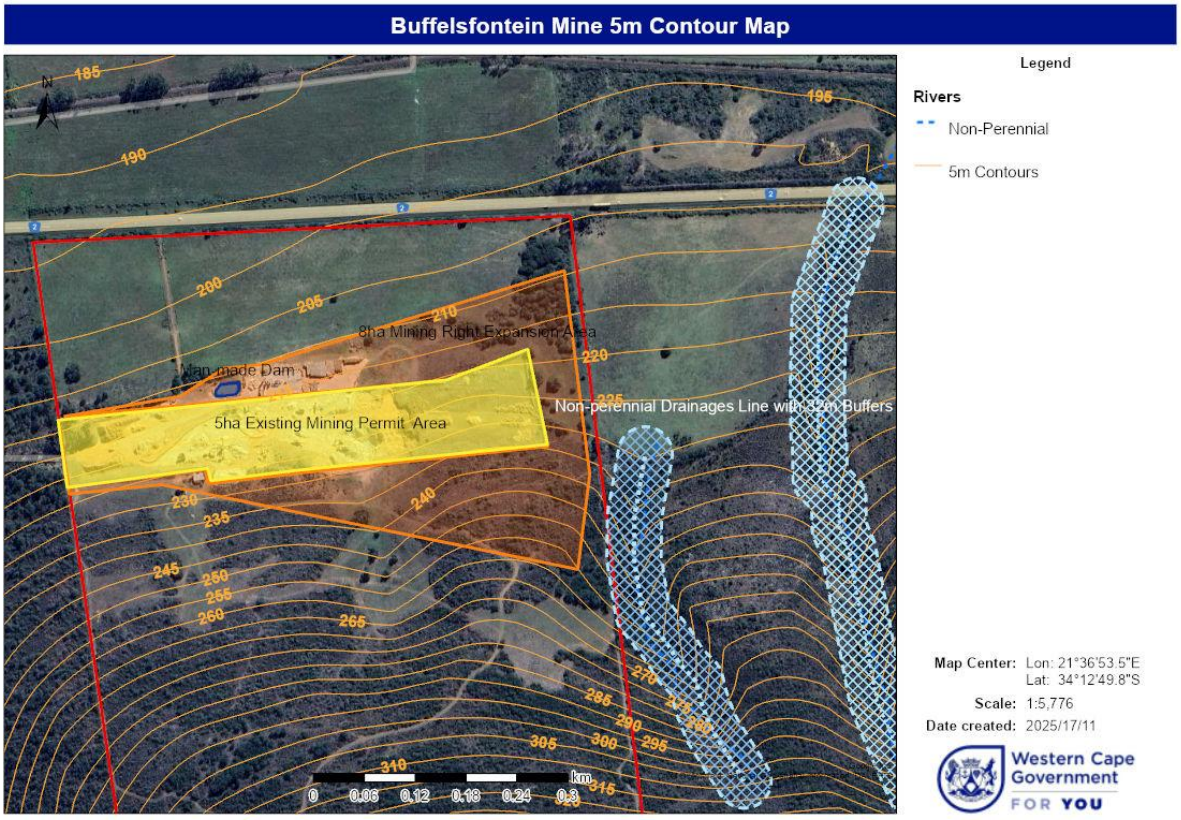


Figure4: 5m interval contour map of existing and proposed mining area expansion area, on the northern footslopes of Hoogmoed se Berg on Portion 46 (A Portion of Portion 23) of Farm Buffels Fontein 435.

4.3. Geology and Soils

The geology of the proposed mining area is quartzitic sandstone of the Table Mountain Group. The resource exists across the entire application area and stone exists from surface (or just below surface) to a depth below what would be possible to mine. There is no significant variation in the resource across the entire application area.

Broad Soils Classification (ENPAT)

Soil Type: Miscellaneous land classes, rocky areas with miscellaneous soils. Glenrosa and/or Mispah forms (other soils may occur), lime rare or absent in upland soils but generally present in low-lying soils

Geology: Mainly quartzitic sandstone of the Table Mountain Group. Shale and sandstone of the Bokkeveld and Table Mountain Groups, largely covered by Tertiary terrace gravel.

Land Type
Land Type: Ib67; Fb67
Description: Rock areas with miscellaneous soils; Lime rare or absent in upland soils but generally present in low-lying soils
Class: MISCELLANEOUS LAND CLASSES; GLENROSA AND/OR MISPAH FORMS (other soils may occur)
Area (Ha): 2172.553; 1257.202
Soil Type
Symbol: EB
Class: Soils with limited pedological development
Description: Soils with minimal development, usually shallow on hard or weathering rock, with or without intermittent diverse soils. Lime generally present in part or most of the landscape
Depth: < 450 mm
Clay: < 15%
Soil Clay & Depth
Symbol: EB
Class: Soils with limited pedological development
Description: Soils with minimal development, usually shallow on hard or weathering rock, with or without intermittent diverse soils. Lime generally present in part or most of the landscape
Depth: < 450 mm
Clay: < 15%
Soil Erodibility
Erodibility: High
Erodibility Factor: 0.52
Source: CapeFarmMapper dated 17/11/2025.

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

The N2 national road lies along the northern border of the property and the site was previously used for heavy livestock grazing therefore *Cynodon* grass species and woody alien trees have encroached on most of the site, especially along the lower lying areas. At the moment there are still horses grazing on the lower lying areas in-between the N2 national road and existing fenced-off 5ha mining permit area.

The proposed additional mining area of 8ha located immediately north, east and south of the existing 5ha mining permit area was also historically brush cut throughout the years and this has increased the spread of the woody alien vegetation infestation like *Acaia mearnsii, Acacia saligna*, *Acacia cyclops* and pine trees. In-between the woody alien trees there are still remnants of indigenous vegetation species however it is evident from the site investigation that due to disturbances there are limited diversity in the remaining indigenous vegetation species.

According to CapeNature (2024) 2023 Western Cape Biodiversity Spatial Plan and

Guidelines the lower lying northern and eastern proposed expansion areas have been mapped as Terrestrial CBA 1 area and the higher lying southern expansion areas as Other Natural Area. The southern slope at the foothill of the Hoogmoed se Berg has returning indigenous vegetation as part of the North Langeberg Sandstone Fynbos (Least Concern) vegetation type. The VEGMAP of South Africa 2024 shows Albertina Sand Fynbos (Endangered) mapped for the lower lying areas, however the lower lying areas as previously mentioned have been significantly transformed.

Below is a list of indigenous plant species recorded within existing 5ha mining permit site and lower lying expansion areas mapped as CBA and falling within Albertinia Sand Fynbos vegetation type:

- *Osteospermum moniliferum*
- *Carpobrotus edulis*
- *Elytropappus rhinocerotis*
- *Stoebe plumosa*
- *Helichrysum teritifolium*
- *Pelargonium crispum*
- *Aloe ferox (planted by the residents on site next to the homestead)*

Below is a list of indigenous plant species recorded within the higher lying proposed expansion areas on the slopes of Hoogmoed se Berg mapped as Other Natural Areas as part of North Langeberg Sandstone Fynbos vegetation type:

- *Erica discolor* (dense stands)
- *Carpobrotus edulis*
- *Eriocephalus africanus*
- *Pelargonium crispum*
- *Elytropappus rhinocerotis*
- *Psoralea pinnata*
- *Protea repens*
- *Chaenostoma revolutum*
- *Helichrysum teritifolium*
- *Ursinia dentata*
- *Lobostemon echioides*
- *Metalasia acuta*
- *Osyris compressa*
- *Aspalathus sp.*
- *Ursinia dentata*
- *Searsia lucida*
- *Aspalathus sp.*
- *Syncarpha paniculata*

Significant weeds and alien invasive species identified on the site and surrounds:

- *Cynodon dactylon – Kweek gras (previously planted on site when the site was used for heavy livestock grazing, dominating the northern previously cleared areas of the property)*
- *Conyza scabrida*

- *Acacia cyclops*
- *Pinus pinaster*
- *Acacia saligna*
- *Acacia mearnsii*
- *Eucalyptus sp.*
- *Veronica beccabunga*
- *Echium plantigineum – Patterson's curse*

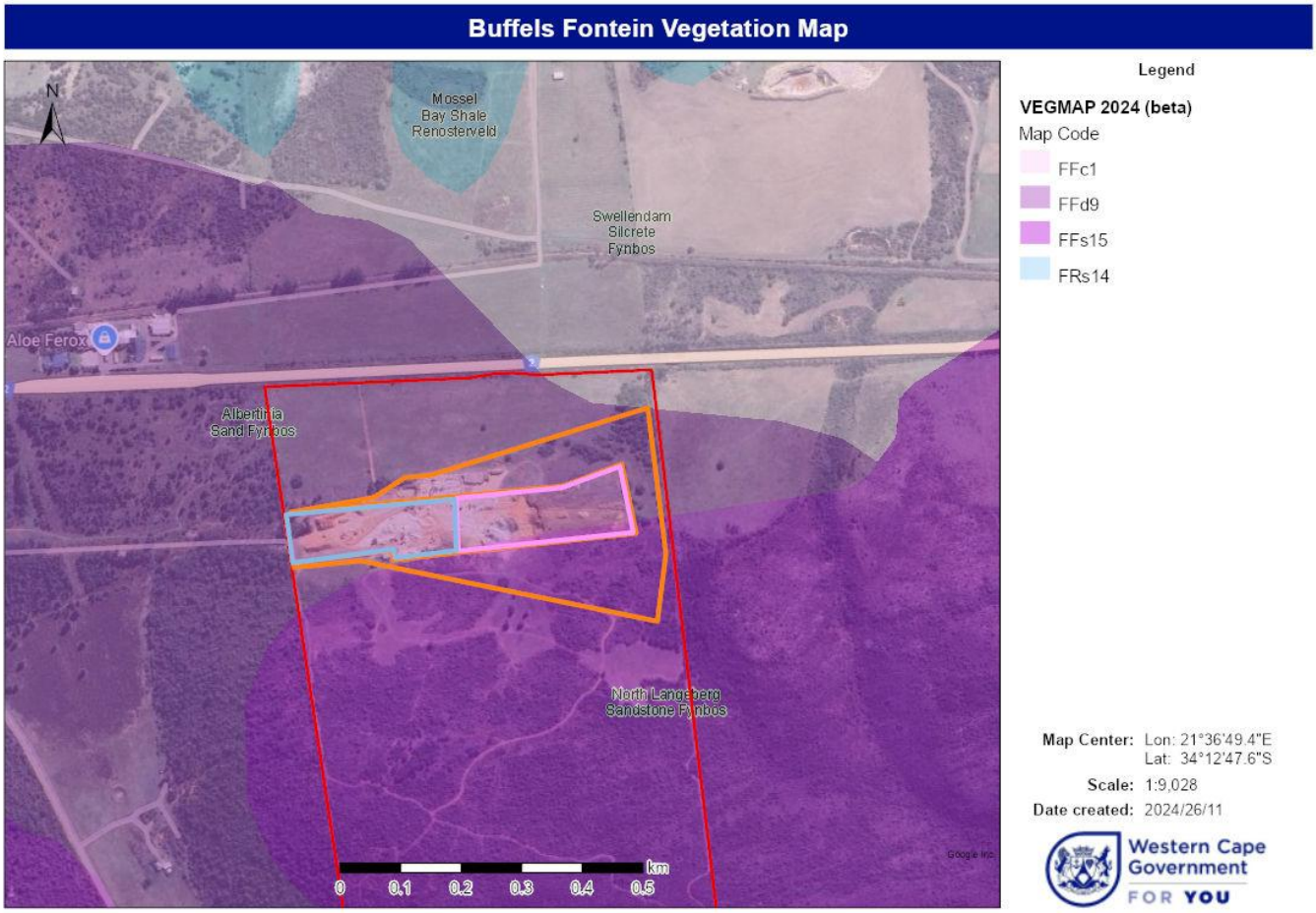


Figure 5: Study area National Vegetaiton Map 2024 (Cape Farm Mapper 26/11/2024).

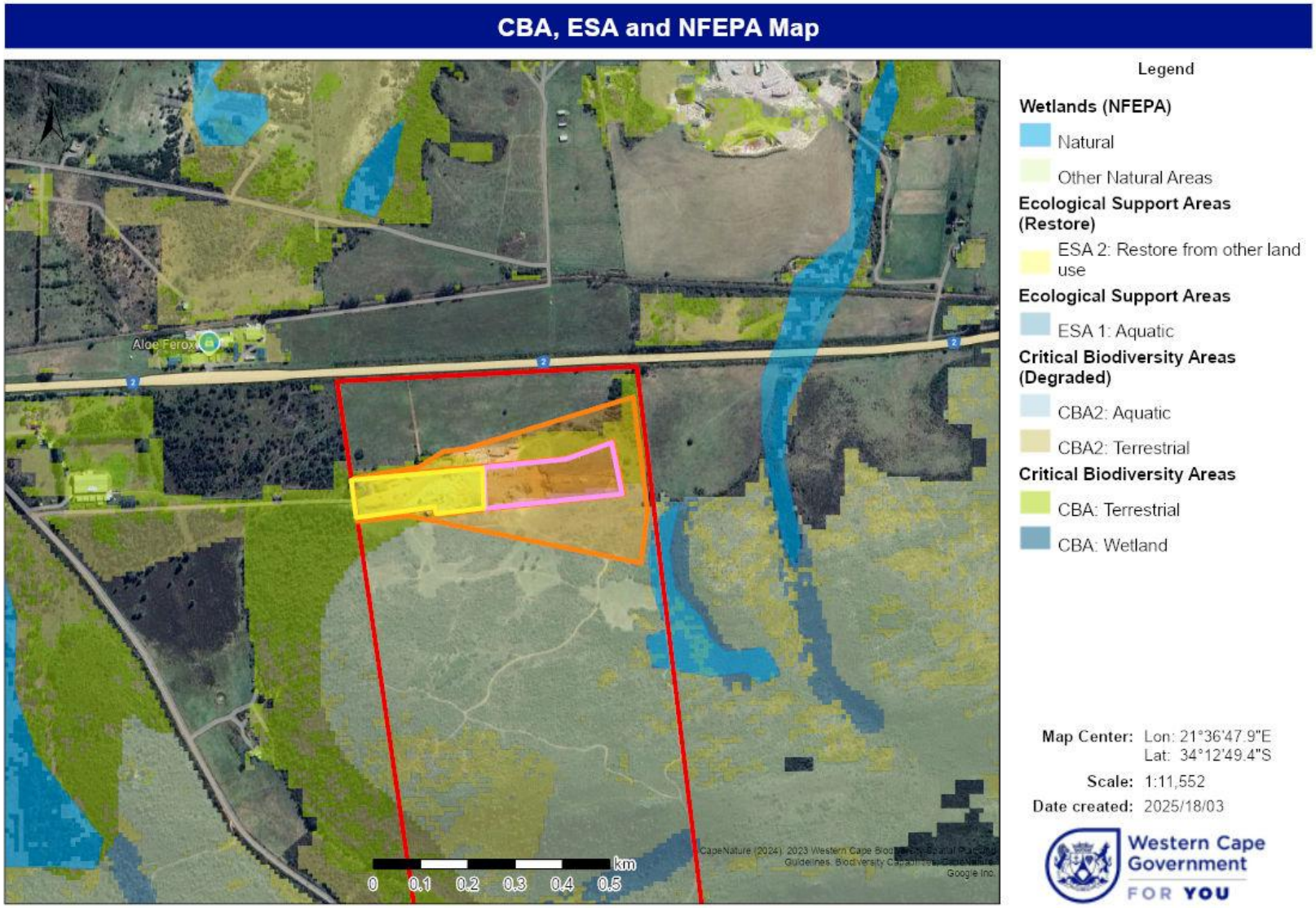


Figure 6: 2023 WCBSP indicating CBA, ESA, Other Natural Area and NFEPA mapping of existing 5ha mining permit area (yellow and pink) and proposed 8ha mining right expansion area (orange) on farm Buffelsfontein.

Photo 1: Existing 5ha mining permit area at foothill of Hoogmoed se Berg.

Photo 2: Lower lying proposed mining expansion area north of existing mining permit area, periodically brush-cut with *Cynadon* grass and negligible scattered indigenous pioneer vegetation**.**

Photo 3: Lower lying proposed mining expansion area north of existing mining permit area, periodically brush-cut with *Cynadon* grass and negligible scattered indigenous pioneer vegetation**.**

Photo 4: Lower lying proposed mining expansion area north of existing mining permit area, periodically brush-cut with *Cynadon* grass and negligible scattered indigenous pioneer vegetation.

Photo 5: Lower lying proposed mining expansion area north of existing mining permit area, periodically brush-cut with *Cynadon* grass and negligible scattered indigenous pioneer vegetation.

Photo 6: Lower lying proposed mining expansion area north of existing mining permit area, periodically brush-cut with *Cynadon* grass and negligible scattered indigenous pioneer vegetation.

Photo 7: Lower lying proposed mining expansion area north of existing mining permit area, periodically brush-cut with *Cynadon* grass and negligible scattered indigenous pioneer vegetation.

Photo 8: Lower lying proposed mining expansion area east of existing mining permit area, periodically brush-cut with *Cynadon* grass and negligible scattered indigenous pioneer vegetation.

Photo 9: Proposed mining expansion area east of existing mining permit area, periodically brush-cut with *Cynadon* grass and negligible scattered indigenous pioneer vegetation and significant alien tree Black Wattle stands**.**

Photo 10: Higher lying proposed mining expansion area east of existing mining permit area, periodically brush-cut with *Cynadon* grass and negligible scattered indigenous pioneer vegetation and significant alien tree Black Wattle stands**.**

Photo 11: Adjacent property (east) homogenous degraded indigenous vegetation in-between proposed mining expansion area and non-perennial drainage line not to be impacted upon.

Photo 10: Higher lying proposed mining expansion area east of existing mining permit area, periodically brush-cut with *Cynadon* grass and negligible scattered indigenous pioneer vegetation and significant alien tree Black Wattle stands**.**

Photo 11: Higher lying proposed mining expansion area east of existing mining permit area, periodically brush-cut with *Cynodon* grass and negligible scattered indigenous pioneer vegetation and significant alien tree Black Wattle stands**.** Dense stands of *Erica discolor* in photo.

Photo 12: High lying proposed mining expansion area south of existing mining permit area, with indigenous vegetation**.** Dense stands of *Erica discolor* in photo.

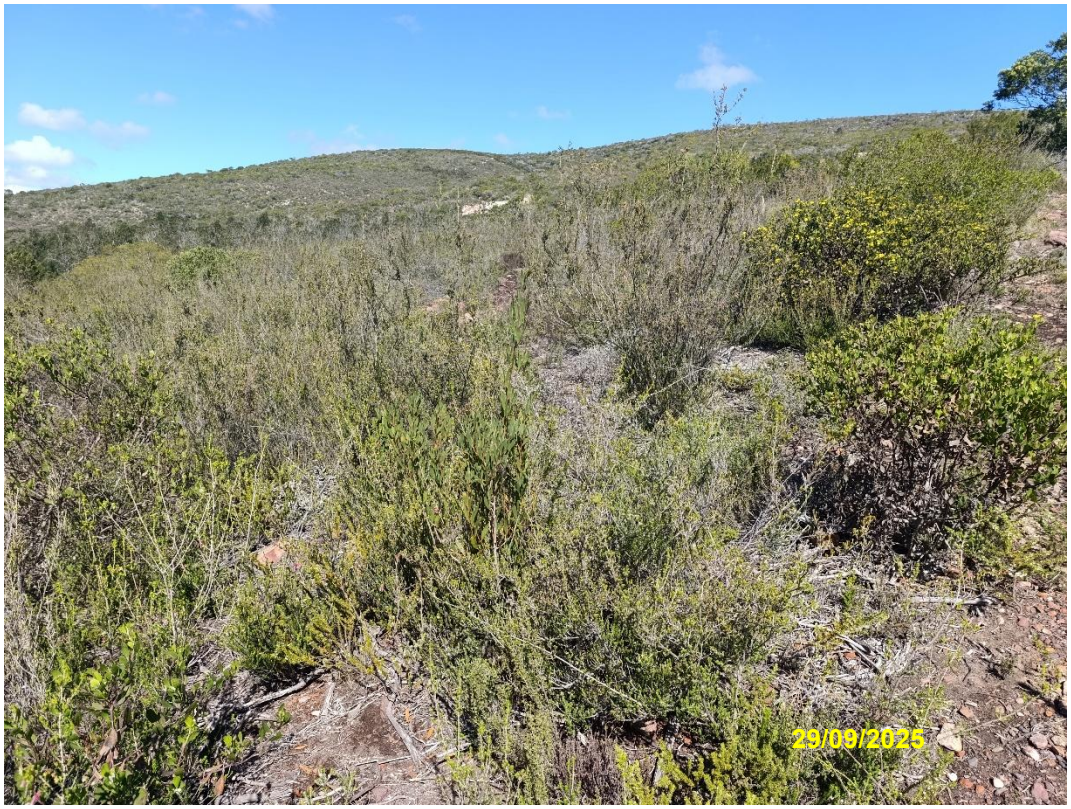


Photo 13: High lying proposed mining expansion area south of existing mining permit area, with indigenous vegetation.

Photo 14: High lying proposed mining expansion area south of existing mining permit area, with indigenous vegetation.

Photo 15: High lying proposed mining expansion area south of existing mining permit area, with indigenous vegetation**.**

Photo 16: High lying proposed mining expansion area south of existing mining permit area, with transformed and periodically brush-cut indigenous vegetation with significant alien tree infestations.

Photo 17: High lying proposed mining expansion area south of existing mining permit area, with transformed and periodically brush-cut indigenous vegetation with significant alien tree infestations.

Photo 18: High lying proposed mining expansion area south of existing mining permit area, with transformed and periodically brush-cut indigenous vegetation with significant alien tree infestations.

Photo 19: High lying proposed mining expansion area south of existing mining permit area, with transformed and periodically brush-cut indigenous vegetation with significant alien tree infestations.

Photo 20: High lying proposed mining expansion area south of existing mining permit area, with transformed and periodically brush-cut indigenous vegetation with significant alien tree infestations.

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

No SCC were recorded or observed at the time of the survey and is not likely to occur on site due to habitat loss and the current ecological status of the site and surrounding area.

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

No SCC were recorded or observed at the time of the survey and is not likely to occur on site due to habitat loss and the current ecological status of the site and surrounding area.

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

Refer to table 1 under point 4.4.3.

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

In terms of vegetation the site falls within the South Coast Fynbos Bioregion and according to the National Vegetation Map, Version 2024 the vegetation types relevant to the area as assessed are Albertinia Sand Fynbos with an “Endangered” status, and North Langeberg Sandstone Fynbos which is classified as “Least Threatened” in terms of the “Revised National list of ecosystems that are threatened and in need of protection” (GN. No. 2747 of 18 November 2022)

Vegetation Type: Albertinia Sand Fynbos
Reference number: FFd9

VT 47 Coastal Macchia (86%) (Acocks 1953). Limestone Fynbos (49%), Dune Fynbos (20%) (Moll & Bossi 1983). LR 67 Limestone Fynbos (53%) (Low & Rebelo 1996). BHU 17 Canca Limestone Fynbos (27%), BHU 34 Riversdale Coast Renosterveld (25%), BHU 14 Albertinia Sand Plain Fynbos (23%) (Cowling et al. 1999b, Cowling & Heijnis 2001).

Distribution: Western Cape Province: Generally longitudinally east-west-trending patches on the coastal plain from Potberg in the west to the Gouritz River in the east. Also found from Kleinberg to west of Mossel Bay, with isolated unmapped out liers near Groot Brak River and between Potberg and De Hoop Vlei. The patches of this vegetation unit almost always border a limestone fynbos type. When enclosed by limestone, it is often found in depressions which can be extensive, for example the Wankoe south of Riversdale and Canca se Leegte south of Albertinia. Altitude 20–260 m.

Vegetation and Landscape Features: Plains and undulating hills with numerous dune slacks—forming the most extensive area of sand fynbos within the limestone fynbos area and occupying most of the depressions, valleys and lower slopes. Vegetation is characterised by medium tall (1.5–2 m tall) open shrub layer, together with a dense stratum

of 1–1.2 m tall shrubs and hemicryptophytes. It is structurally predominantly proteoid fyn bos, but with extensive restioid fynbos in the watercourses and coastal edges.

Geology & Soils: Deep neutral to acid, usually red, Tertiary sands associated with limestone of Bredasdorp Formation, but also acid sands derived from alluvial deposits from the Gouritz River. Acid Tertiary sands, usually grey, from Potberg and Aasvogelberg are locally prominent. Land types mainly Fc, Hb and Db.

Climate: MAP 230–620 mm (mean: 430 mm), with no clear peak and a slight low in December–January. Mean daily maximum and minimum temperatures 25.5°C and 6.4°C for January–February and July, respectively. Frost incidence about 3 days per year. See also climate diagram for FFd 9 Albertinia Sand Fynbos (Figure 4.57).

Important Taxa: *Cape thickets, Wetlands) Tall Shrubs: Cassine peragua subsp. peragua (d), Leucadendron eucalypti folium (d), Metalasia densa (d), Protea repens (d), P. susannae (d), Nylandtia spinosa, Passerina corymbosa, Psoralea pinna taW. Low Shrubs: Chironia baccifera (d), Cliffortia ilicifolia (d), C. stricta (d), Erica imbricata (d), Lachnaea axillaris (d), Agathosma bifida, A. scaberula, Amphithalea tomentosa, Anthospermum prostratum, Aulax umbellata, Carpacoce vaginellata, Chrysocoma ciliata, Cliffortia drepanoides, Diospyros dichro phyllaT, Erica discolor, E. pulchella, E. sessiliflora, E. versicolor, Euryops ericoides, Leucadendron meridianum, L. salignum, Muraltia ciliaris, Passerina galpinii, P. rigida, Phylica parviflora, Psoralea laxa, Senecio ilicifolius, Staavia radiata, Struthiola ciliata subsp. incana, Syncarpha paniculata, Trichocephalus stipularis, Trichogyne repens. Herbs: Edmondia sesamoides, Senecio laevigatus. Geophytic Herbs: Pteridium aquilinum (d), Bobartia robusta, Bulbine frutescens, Romulea dichotoma, R. giganteaW. Graminoids: Calopsis adpressa (d), Elegia stipula ris (d), Ischyrolepis leptoclados (d), Mastersiella purpurea (d), Thamnochortus insignis (d), Cynodon dactylon, Elegia muirii, E. tectorum, Mastersiella spathulata, Staberoha distachyos, Thamnochortus erectus, T. fruticosus, Willdenowia teres.*

Endemix Taxa: Tall Shrubs: *Leucospermum praecox (d), Leucadendron galpinii (d), Leucospermum fulgens. Low Shrubs: Euchaetis albertiniana (d), Agathosma pallens, Aspalathus acu tiflora, A. dasyantha, A. odontoloba, A. quadrata, A. sanguinea subsp. foliosa, Diosma sabulosa, Erica baueri subsp. baueri, E. dispar, E. viscosissima, Lebeckia fasciculata, Leucospermum muirii, Lobelia valida. Succulent Shrubs: Lampranthus anteme ridianus, L. creber, L. diutinus, L. fergusoniae, L. multiseriatus. Herb: Zaluzianskya muirii. Graminoid: Thamnochortus muirii.*

Conservation: Endangered. Target 32%. About 5% statu torily conserved in De Hoop, Pauline Bohnen, Geelkrans, Kleinjongensfontein, Skulpiesbaai and Blomboschfontein Nature Reserves, with an additional 2% protected in private conservation areas such as Rein's Coastal (Gouriqua) Nature Reserve, Die Duine etc. Some 26% transformed for cultiva tion (pasture) and pine plantations, but a large proportion has also been transformed by alien plants (Acacia cyclops and A. saligna). In addition, large areas have been converted from pro teoid fynbos to restioid fynbos by bush-cutting for thatching. Erosion very low.

Remark 1: The boundary between the limestone and sand fyn bos is often one of soil depth, with limestone fynbos being largely confined to skeletal soils. In permanently wet areas and fire-safe habitats, thicket may occur, often in association with *Protea lanceolata*, *Elegia microcarpa* and *Thamnochortus erectus*—these are usually at the interface between sand and limestone fynbos. *Leucospermum muirii* is an endemic to the grey, sandstone-derived soils—it is not known whether other endemics to this soil type occur or whether this deserves special recognition.

Remark 2: This unit is still not accurately mapped and is more extensive than shown. Pockets occur in valleys and depressions within limestone fynbos as far west as De Hoop Vlei and as far east as the Groot Brak River. Disturbed areas on the coastal fringe sometimes converted to Cynodon grazing, with extensive mole rat (*Bathyergus suillus*) activity.

Remark 3 The tall tussock restios typical of this sand fynbos are an important source for the thatching industry.

References Muir (1929), Rebelo et al. (1991), Boucher (1995, 1997d, 1998c), Boucher & Rode (1995a, b).

Observations and Findings Relevant to the Site as Assessed:

During the site visit and as per investigation of historical google earth imagery, it is evident that all indigenous vegetation has been previously cleared on the existing 5ha mining permit site during previous ploughing and planting of grass for livestock grazing and more recently ongoing mining and brush-cut activities. Also within the lower lying parts of the proposed mining expansion area the original indigenous vegetation has been completely transformed due to previous ploughing and planting of grass for livestock grazing and ongoing periodic brush cutting to maintain conditions suitable for livestock grazing. The returning indigenous vegetation species is not representative of Albertinia Sand Fynbos habitat and the degraded state of the applicable areas has no significant ecological connectivity value.

Below is a list of indigenous plant species recorded within existing 5ha mining permit site and lower lying expansion areas mapped as CBA and falling within Albertinia Sand Fynbos vegetation type:

- *Osteospermum moniliferum*
- *Carpobrotus edulis*
- *Elytropappus rhinocerotis*
- *Stoebe plumosa*
- *Helichrysum teritifolium*
- *Pelargonium crispum*
- *Aloe ferox (planted by the residents on site next to the homestead)*

Significant weeds and alien invasive species identified on the site and surrounds:

- *Cynodon dactylon – Kweek gras (previously planted on site when the site was used for heavy livestock grazing, dominating the northern previously cleared areas of the property)*
- *Conyza scabrida*

- *Acacia cyclops*
- *Pinus pinaster*
- *Acacia saligna*
- *Acacia mearnsii*
- *Eucalyptus sp.*
- *Veronica beccabunga*
- *Echium plantigineum – Patterson's curse*

No plant Species of Conservation Concern was recorded on the site and none is expected to occur in viable numbers on the site due to previous and ongoing disturbances to the indigenous vegetation on the site. The site also shows clear signs of significant transformation such a *Cynodon* grass grazing that was previously established for livestock grazing which is still ongoing. The vegetation within these areas is characterized and dominated by pioneer grasses and does not represent the vegetation structure of Albertinia Sand Fynbos.

Given the transformed state of the existing 5ha mining permit site and the expected overall loss of less than 300m² of homogenous indigenous vegetation and no Species of Conservation Concern, taken in context of the broader landscape, the cumulative impacts of the proposed mining activities on indigenous plant species potentially associated with Albertinia Sand Fynbos of the site on a regional and local scale would not be significant and can be rated as **Low Negative to Negligible.**

Vegetation Type: North Langeberg Sandstone Fynbos
Reference number: FFs 15

VT 70 False Macchia (47%), VT 69 Macchia (24%) (Acocks 1953). Mesic Mountain Fynbos (30%), Dry Mountain Fynbos (30%) (Moll & Bossi 1983). LR 64 Mountain Fynbos (67%) (Low & Rebelo 1996). BHU 64 Southern Langeberg Mountain Fynbos Complex (46%), BHU 60 Koo Langeberg Mountain Fynbos Complex (20%) (Cowling et al. 1999b, Cowling & Heijnis 2001).

Distribution: Western Cape Province: Northern slopes of the Langeberg from the Keerom Mountains near Worcester in the west to Cloete's Pass north of Albertinia in the east, and to the interior on the Waboomsberg and Warmwaterberg Mountains north of Montagu and Barrydale, respectively. Also includes Aasvoëlberg hills from Albertinia to Mossel Bay. Altitude range very broad, 100–1 800 m, with several high peaks such as Misty Point (1 709 m) and Grootberg (1 637 m), generally higher in the west than the east. FFs 30 Western Altimontane Sandstone Fynbos on the western peaks above 1 800 m.

Description: Gentle to steep, north-fac ing slopes, not much dissected over much of the range. Surface is gently sloping foothills of Waboomsberg, Warmwaterberg and Aasvoëlberg. The Cedarberg Shale Band is prominent in the west, mainly as a smooth-sided valley, along which most of the hiking trails are orientated. Vegetation is mainly proteoid and restioid fynbos, with ericaceous fynbos at higher altitudes and asteraceous fynbos on the lower slopes. Old African sur face conglomerates (mapped as part of this unit) on the lower slopes have asteraceous fynbos dominated by Dodonaea viscosa var.

angustifolia. Ravines support Cape thicket, dominated by Buddleja saligna, and species of Pelargonium, Rhus and Salvia.

Geology & Soils: Acidic lithosol soils derived from Ordovician sandstones of the Table Mountain Group (Cape Supergroup). Land types mainly Ic, Ib, Db and Fc.

Climate: MAP 250–1 200 mm (mean: 580 mm), peaking very slightly in winter and with a slight low from December to February. Mean daily maximum and minimum temperatures 26.5°C and 4.1°C for January and July, respectively. Frost inci dence 3–20 days per year. See also climate diagram for FFs 15 North Langeberg Sandstone Fynbos.

Importance Taxa: ((Wetlands) Small Tree: *Protea nitida* (d). Tall Shrubs: *Leucadendron eucalyptifolium (d), Metalasia densa (d), Protea neriifolia (d), P. repens (d), Chrysanthemoides monilifera, Dodonaea viscosa var. angustifolia, Protea eximia, Psoralea pin nataW. Low Shrubs: Agathosma ovata (d), Diosma tenella (d), Erica anguliger (d), E. hispidula (d), E. melanthera (d), E. rosacea subsp. rosacea (d), E. versicolor (d), Leucadendron salignum (d), Leucospermum calligerum (d), Passerina obtusifolia (d), Phylica pinea (d), Agathosma cerefolium, Anthospermum spathulatum subsp. spathulatum, Aspalathus granulata, A. inops, A. vulpina, Berzelia galpiniiW, Brunia macrocephala, Cyclopia bowieana, Elytropappus hispidus, Erica articularis, E. coarctata, E. cubica, E. tenuis, Euryops pinnatipartitus, Gnidia francisci, Indigofera pappei, Leucadendron cordatum, Leucospermum cuneiforme, L. mundii, Lobelia capillifolia, Lobostemon decorus, Metalasia massonii, M. pulcherrima f. pallescens, Mimetes cucullatus, Muraltia heisteria, Paranomus candicans, Penaea cneorum subsp. ruscifolia, Phaenocoma prolifera, Phylica axillaris, Protea aspera, P. lorifolia, Stoebe aethiopica, S. cinerea, S. saxatilis, Syncarpha milleflora, Ursinia hispida, U. rigidula, Wahlenbergia tenella. Succulent Shrubs: Adromischus triflorus, Crassula atropurpurea var. atropurpurea, Machairophyllum albidum, Oscularia deltoides, Senecio aizoides*. Woody Succulent Climber: *Zygophyllum fulvum*. Semiparasitic Shrub: *Thesium subnudum*. Herbs: *Lobelia pubescens var. pubescens (d), Centella virgata, Linum gracile, Peucedanum ferulaceum, Polygala refracta, Ursinia nudicaulis. Geophytic Herbs: Lanaria lanata (d), Aristea racemosa*. Herbaceous Parasitic Climber: *Cassytha ciliolata*. Graminoids: *Ceratocaryum decipiens (d), Ehrharta dura (d), E. ramosa subsp. aphylla (d), Elegia filacea (d), E. galpi nii (d), Heteropogon contortus (d), Hypodiscus argenteus (d), H. aristatus (d), H. striatus (d), Merxmuellera decora (d), Pentaschistis colorata (d), P. eriostoma (d), Restio filiformis (d), R. inconspicuus (d), Staberoha cernua (d), Tetraria bro moides (d), T. flexuosa (d), T. ustulata (d), Willdenowia bolusii (d), Calopsis fili formis, C. rigida, Cannomois parviflora, Elegia asperiflora, Ficinia acuminata, F. laciniata, F. trichodes, Hypodiscus lae vigatus, H. montanus, Ischyrolepis cap ensis, I. sieberi, Mastersiella purpurea, Pentameris macrocalycina, Pentaschistis malouinensis, Restio peculiaris, R. stric tus, R. triticeus, Rhodocoma fruticosa, Tetraria involucrata, T. thermalis, Thamnochortus cinereus*.

Endemic Taxa: (Wetlands) Low Shrubs: *Serruria balanocephala (d), Acmadenia latifolia, A. nivenii, A. trigona, Amphithalea cymbifolia, Anderbergia fallax, Aspalathus longifolia, A. ver basciformis, Cliffortia alata, C. pulchella, Clutia govaertsii, Erica atropurpurea, E. barrydalensis, E. chlorosepala, E. gigantea, E. langebergensis, E. leucodesmia, E. rhodantha, E. rudolfii, Felicia cana, F. comptonii, Leucospermum erubescens, L. saxa tile,*

Lobostemon muirii, Lotononis purpurescens, Metalasia galpinii, Paranomus spathulatus, Pelargonium denticulatum, Phylica brachycephala, P. mairei, Polygala langebergensis, Prismatocarpus lasiophyllus, Protea holosericea, Wahlenbergia fruticosa, W. oligantha. Succulent Shrubs: Antimima verruco sula, Drosanthemum croceum, Erepsia polita, Lampranthus laetus, L. marcidulus, L. verecundus. Geophytic Herbs: Disa schlechteriana, Ixia stolonifera. Graminoids: Platycaulos acutus, Restio implicatus, R. perseverans, Thamnochortus amoena, T. ellipticus, T. karooica.

Conservation: Least threatened. Target 30%. Statutorily con served (13%) in the Boosmansbos Wilderness Area, with an additional 45% in mountain catchment areas such as Langeberg oos, Langeberg-wes and Matroosberg. Some 8% transformed (cultivation). Aliens include *Pinus pinaster, Hakea sericea* and *Acacia mearnsii*. Erosion very low and moderate.

Remarks: The eastern boundary of North Langeberg Sandstone Fynbos has been set at Cloete's Pass, but could equally well have been set at Robinson Pass. The area between the Robinson and Cloete's Passes has at least two near endemic Proteaceae (*Leucospermum saxatile, Paranomus longicaulis*), which extend west of the Gouritz River gap. More data are needed to deter mine an optimal boundary between the North Langeberg Sandstone Fynbos and FFs 18 North Outeniqua Sandstone Fynbos based on species distributions and associated vegetation patterns. The coastal range of the Aasvoëlberg, although isolated, clearly fits within FFs 15 North Langeberg Sandstone Fynbos. However, we have tentatively included the southern slopes of the Aasvoëlberg within this unit, pending further investigation.

References Muir (1929), McDonald (1993a, b, c, 1995, 1999), McDonald et al. (1995, 1996).

Observations and Findings Relevant to the Site as Assessed:
The higher lying areas of Hoogmoed se Berg as part of the proposed mining expansion site which falls within the mapped North Langeberg Sandstone Fynbos vegetation area has remnants of this vegetation type remaining which can be described as in a moderately good to significantly degraded state due to historical and ongoing brushcutting and most likely fires which has led to fragmentation, open grass areas and significant alien trees infestations.

Below is a list of indigenous plant species recorded within the higher lying proposed expansion areas on the slopes of Hoogmoed se Berg mapped as Other Natural Areas as part of North Langeberg Sandstone Fynbos vegetation type:

- *Erica discolor* (dense stands)
- *Carpobrotus edulis*
- *Eriocephalus africanus*
- *Pelargonium crispum*
- *Elytropappus rhinocerotis*
- *Psoralea pinnata*
- *Protea repens*
- *Chaenostoma revolutum*
- *Helichrysum teritifolium*

- *Ursinia dentata*
- *Lobostemon echioides*
- *Metalasia acuta*
- *Osyris compressa*
- *Aspalathus sp.*
- *Ursinia dentata*
- *Searsia lucida*
- *Aspalathus sp.*
- *Syncarpha paniculata*

Significant weeds and alien invasive species identified on the site and surrounds:

- *Cynodon dactylon – Kweek gras (previously planted on site when the site was used for heavy livestock grazing, dominating the northern previously cleared areas of the property)*
- *Conyza scabrida*
- *Acacia cyclops*
- *Pinus pinaster*
- *Acacia saligna*
- *Acacia mearnsii*
- *Eucalyptus sp.*
- *Veronica beccabunga*
- *Echium plantigineum – Patterson's curse*

Given the historical and ongoing impacts within the higher lying areas of Hoogmoed se Berg where mining expansion is proposed it is expected that mining within this area will lead to the loss of ±2ha of indigenous vegetation and no Species of Conservation Concern as part of North Langeberg Sandstone Fynbos, taken in context of the broader landscape, the cumulative impacts of the proposed mining activities on indigenous plant species of North Langeberg Sandstone Fynbos on a regional and local scale would not be significant and can be rated as **Low Negative**.

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

Below is the list of potential plant species found within the area as listed in the DEA Screening Report:

Sensitivity	Feature(s)
Medium	*Lampranthus ceriseus*
Medium	*Lampranthus diutinus*
Medium	*Lampranthus fergusoniae*
Medium	*Lampranthus pauciflorus*
Medium	*Aspalathus acutiflora*
Medium	*Aspalathus dasyantha*
Medium	*Aspalathus quadrata*
Medium	*Lebeckia gracilis*

Medium	*Leucadendron galpinii*
Medium	*Leucadendron linifolium*
Medium	*Leucospermum muirii*
Medium	*Leucospermum praecox*
Medium	*Wahlenbergia polyantha*
Medium	*Freesia fergusoniae*
Medium	*Sensitive species 700*
Medium	*Erica baueri subsp. baueri*
Medium	*Erica viscosissima*
Medium	*Sebaea rara*
Medium	*Sensitive species 339*
Medium	*Sensitive species 1024*
Medium	*Gnidia ericoides*
Medium	*Metalasia luteola*
Medium	*Athanasia cochlearifolia*
Medium	*Stoebe rugulosa*
Medium	*Relhania garnotii*
Medium	*Diosma tenella*
Medium	*Agathosma eriantha*
Medium	*Agathosma muirii*
Medium	*Agathosma riversdalensis*
Medium	*Acmadenia macropetala*
Medium	*Euchaetis albertiniana*
Medium	*Euchaetis longicornis*
Medium	*Sensitive species 980*
Medium	*Phylica incurvata*
Medium	*Orthochilus litoralis*
Medium	*Aspalathus tylodes*
Medium	*Sensitive species 800*
Medium	*Elegia squamosa*
Medium	*Sensitive species 654*
Medium	*Diosma passerinoides*

Numbered sensitive species names available upon request.

None of the species listed in the screen tool report were recorded on site for proposed mining expansion.

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

Refer to Observations and Findings descriptions under point 4.4.5.

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

Refer to Observations and Findings descriptions under point 4.4.5.

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

Refer to Observations and Findings descriptions under point 4.4.5.

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

Two sets of conservation mapping results are of relevance to the national and provincial identification of the biodiversity conservation importance that has been attributed to the freshwater features in the study area. The Western Cape's Biodiversity Spatial Plan (WCBSP, 2024) that contains Critical Biodiversity Areas (CBA) as well as the National Freshwater Ecosystem Priority Areas (FEPA) map. FEPAs are intended to provide strategic spatial priorities for conserving South Africa's freshwater ecosystems and supporting sustainable use of water resources.

The N2 national road lies along the northern border of the property and the site was previously used for heavy livestock grazing therefore Cynodon grass species and woody alien trees have encroached on most of the site, especially along the lower lying areas. At the moment there are still horses grazing on the lower lying areas in-between the N2 national road and existing fenced-off 5ha mining permit area.

The proposed additional mining area of 8ha located immediately north, east and south of the existing 5ha mining permit area was also historically brush cut throughout the years and this has increased the spread of the woody alien vegetation infestation like Acaia mearnsii, Acacia saligna, Acacia cyclops and pine trees. In-between the woody alien trees there are still remnants of indigenous vegetation species however it is evident from the site investigation that due to disturbances there are limited diversity in the remaining indigenous vegetation species.

According to CapeNature (2024) 2023 Western Cape Biodiversity Spatial Plan and Guidelines the lower lying northern and eastern proposed expansion areas have been mapped as Terrestrial CBA 1 area and the higher lying southern expansion areas as Other Natural Area. The southern slope at the foothill of the Hoogmoed se Berg has returning indigenous vegetation as part of the North Langeberg Sandstone Fynbos (Least Concern) vegetation type. The VEGMAP of South Africa 2024 shows Albertina Sand Fynbos (Endangered) mapped for the lower lying areas, however the lower lying areas as previously mentioned have been significantly transformed.

Potential impact on Western Cape Spatial Biodiversity Plan (CapeNature. 2024).

Biodiversity Priorities	Hectares Lost	Is the proposed development aligned with the land management objectives	Proximity to Biodiversity Priority Area
CBA1	During the site visit and as per investigation of historical google earth imagery, it is evident that all indigenous vegetation has been previously cleared on the existing 5ha mining permit site (currently mapped as Terrestrial CBA1) during previous ploughing and planting of grass for livestock grazing and more recently ongoing mining and brush-cut activities. Also within the lower lying parts of the proposed mining expansion area also currently mapped as Terrestrial CBA 1, the original indigenous vegetation has been completely transformed due to previous ploughing and planting of grass for livestock grazing and ongoing periodic brush cutting to maintain conditions suitable for livestock grazing. The returning indigenous vegetation species is not representative of Albertinia Sand Fynbos habitat and the degraded state of the applicable areas has no significant ecological connectivity value. It is therefore not expected that the proposed mining expansion will lead to the loss of Terrestrial CBAs as it appears that the condition and status of the mapped Terrestrial CBA1 was not groundtruthed and therefore not correctly mapped as Terrestrial CBA1.	NA	NA
~~CBA2~~			
~~ESA1~~			
~~ESA2~~			
~~PA~~			
~~Forest~~			
~~River NFEPA including 32m buffer~~			
~~Wetland NFEPA including 32m buffer~~			
~~Strategic water source area~~			
~~Threatened species and Red Data listed species~~			

Refer to Figures 6 and 7 for CBA and NFEPA Maps.

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

Refer to Observations and Findings descriptions under point 4.4.5.

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

Refer to point 1.9 for sensitivity maps.

5. IMPACT ASSESSMENT

5.1. Assessment & Significance Criteria

The assessment criteria used in the assessment are drawn from the protocol for the specialist assessment and minimum report content requirements for environmental impacts (published in Government Notice **no. 320 in** Government Gazette **43110** 20 March 2020) were used.

5.2. Assessment of Potential Impacts

The impacts identified are assessed below, before and after mitigation as well as during construction.

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

Step 1: Determine the **PROBABILITY** of the impact by calculating the average between the Frequency of the Aspect, the Availability of a pathway to the receptor and the availability of the receptor (thus: Sum of the three column scores below ÷ 3)

Frequency of Aspect / Unwanted Event	Score	Availability of pathway from the source to the receptor	Score	Availability of receptor	Score
Never known to have happened, but may happen	1	A pathway to allow for the impact to occur is never available	1	The receptor is never available	1
Known to happen in industry	2	A pathway to allow for the impact to occur is almost never available	2	The receptor is almost never available	2
< once a year	3	A pathway to allow for the impact to occur is sometimes available	3	The receptor is sometimes available	3

Once per year to up to once per month	4	A pathway to allow for the impact to occur is almost always available	4	The receptor is almost always available	4
Once a month - Continuous	5	A pathway to allow for the impact to occur is always available	5	The receptor is always available	5

Step 2: Determine the **MAGNITUDE** of the impact by calculating the average of the factors below (thus: Sum of all six column ratings below ÷ 6)

Source								Receptor			
Duration of impact	**Score**	**Extent**	**Score**	**Volume / Quantity / Intensity**	**Score**	**Toxicity / Destruction Effect**	**Score**	**Reversibility**	**Score**	**Sensitivity of environmental component**	**Score**
Lasting days to a month	1	Effect limited to the site. (metres);	1	Very small quantities / volumes / intensity (e.g. < 50L or < 1Ha)	1	Nontoxic (e.g. water) / Very low potential to create damage or destruction to the environment	1	Bio-physical and/or social functions and/or processes will remain unaltered.	1	Current environmental component(s) are largely disturbed from the natural state. Receptor of low significance / sensitivity	1
Lasting 1 month to 1 year	2	Effect limited to the activity and its immediate surroundings. (tens of metres)	2	Small quantities / volumes / intensity (e.g. 50L to 210L or 1Ha to 5Ha)	2	Slightly toxic / Harmful (e.g. diluted brine) / Low potential to create damage or destruction to the environment	2	Bio-physical and/or social functions and/or processes might be negligibly altered or enhanced / Still reversible	2	Current environmental component(s) are moderately disturbed from the natural state. No environmentally sensitive components.	2
Lasting 1 – 5 years	3	Impacts on extended area beyond site boundary (hundreds of metres)	3	Moderate quantities / volumes / intensity (e.g. > 210 L < 5000L or 5 – 8Ha)	3	Moderately toxic (e.g. slimes) Potential to create damage or destruction to the environment	3	Bio-physical and/or social functions and/or processes might be notably altered or enhanced / Partially reversible	3	Current environmental component(s) are a mix of disturbed and undisturbed areas. Area with some environmental sensitivity (scarce / valuable environment etc.).	3

Source								Receptor			
Duration of impact	**Score**	**Extent**	**Score**	**Volume / Quantity / Intensity**	**Score**	**Toxicity / Destruction Effect**	**Score**	**Reversibility**	**Score**	**Sensitivity of environmental component**	**Score**
Lasting 5 years to Life of Organisation	4	Impact on local scale / adjacent sites (km's)	4	Very large quantities / volumes / intensity (e.g. 5000 L – 10 000L or 8Ha– 12Ha)	4	Toxic (e.g. diesel & Sodium Hydroxide)	4	Bio-physical and/or social functions and/or processes might be considerably altered or enhanced / potentially irreversible	4	Current environmental component(s) are in a natural state. Environmentally sensitive environment / receptor (endangered species / habitats etc.).	4
Beyond life of Organization / Permanent impacts	5	Extends widely (nationally or globally)	5	Very large quantities / volumes / intensity (e.g. > 10 000 L or > 12Ha)	5	Highly toxic (e.g. arsenic or TCE)	5	Bio-physical and/or social functions and/or processes might be severely/substantially altered or enhanced / Irreversible	5	Current environmental component(s) are in a pristine natural state. Highly Sensitive area (endangered species, wetlands, protected habitats etc.)	5

Step 3: Determine the **SEVERITY** of the impact by plotting the averages that were obtained above for Probability and Magnitude in the table below.

ENVIRONMENTAL IMPACT RATING / PRIORITY					
	MAGNITUDE				
PROBABILITY	**1 Minor**	**2 Low**	**3 Medium**	**4 High**	**5 Major**
5 Almost Certain	Low	Medium	High	High	High
4 Likely	Low	Medium	High	High	High
3 Possible	Low	Medium	Medium	High	High
2 Unlikely	Low	Low	Medium	Medium	High
1 Rare	Low	Low	Low	Medium	Medium

PLANT SPECIES IMPACTS ASSESSMENT

(a) Impacts that may result from the **active mining phase** (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 active mining phase)

Impacts on biological aspects:		
	Location Alternative 1	
Nature of impact:	**Impacts of mining activities on terrestrial indigenous vegetation species**	
Extent, duration and magnitude of impact:	E – On site or within 100m of the site (2) D – Short term 0-1 year (1) M – Moderate (6)	
Probability of occurrence:	P - Definite (5)	
Degree to which the impact can be reversed:	Cannot be reversed	
Degree to which the impact may cause irreplaceable loss of resources:	Resource will be destroyed	
Cumulative impact prior to mitigation:	Cumulative impacts of the proposed mining activities will be the phased clearance of of disturbed Albertinia Sand Fynbos (Endangered) and North Langeberg Sandstone Fynbos, least concern vegetation type.	
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	(45) Medium	
Degree to which the impact can be mitigated:	Partly- mitigatable (PM)	
Proposed mitigation:	Mitigation measures that must be implemented- • Clearance of indigenous vegetation must be kept to a minimum clearly demarcating and maintaining the demarcation throughout the active mining phase. • Before clearance of vegetation commences a qualified ECO/specialist must conduct search and rescue of all viable indigenous vegetation species which can be relocated outside mine area. • Where necessary steep slope stairs (terracing) must be created along the quarry edges to slow down water runoff and prevent erosion. • Where topsoil can be replaced it must not be compacted after spreading. Only topsoil as derived and conserved from the proposed mining area must be used to rehabilitate the impacted mining areas. • Should any additional topsoil be required for rehabilitation purposes, it must be from neighbouring properties or alternatively sterilized accordingly. This is to ensure that any imported topsoil is free from soil pathogens, to prevent introduction of new pathogens to the region that could have a detrimental impact on indigenous vegetation. • No waste pollution may occur due to the mining activities and all waste must be contained and disposed of at the municipal landfill site on a weekly basis.	
Cumulative impact post mitigation:	No further loss of sensitive Albertinia Sand Fynbos	
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low negative	

(b) Impacts that may result from the **rehabilitation mining phase** (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 rehabilitation mining phase)

Impacts on biological aspects:		
	Location Alternative 1	
Nature of impact:	**Impacts of mining activities on terrestrial indigenous vegetation species**	
Extent, duration and magnitude of impact:	E – On site or within 100m of the site (2) D – Short term 0-1 year (1) M – Moderate (6)	
Probability of occurrence:	P - Definite (5)	
Degree to which the impact can be reversed:	Partly reversible (PR)	
Degree to which the impact may cause irreplaceable loss of resources:	Resource may be partly destroyed (PR)	
Cumulative impact prior to mitigation:	Cumulative impacts of the proposed mining activities will be the phased clearance of of disturbed Albertinia Sand Fynbos (Endangered) and North Langeberg Sandstone Fynbos, least concern vegetation type.	
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	(45) Medium	
Degree to which the impact can be mitigated:	Partly- mitigatable (PM)	
Proposed mitigation:	Mitigation measures that must be implemented- • Clearance of indigenous vegetation must be kept to a minimum clearly demarcating and maintaining the demarcation throughout the active mining phase. • Before clearance of vegetation commences a qualified ECO/specialist must conduct search and rescue of all viable indigenous vegetation species which can be relocated outside mine area. • Where necessary steep slope stairs (terracing) must be created along the quarry edges to slow down water runoff and prevent erosion. • Where topsoil can be replaced it must not be compacted after spreading. Only topsoil as derived and conserved from the proposed mining area must be used to rehabilitate the impacted mining areas. • Should any additional topsoil be required for rehabilitation purposes, it must be from neighbouring properties or alternatively sterilized accordingly. This is to ensure that any imported topsoil is free from soil pathogens, to prevent introduction of new pathogens to the region that could have a detrimental impact on indigenous vegetation. • No waste pollution may occur due to the mining activities and all waste must be contained and disposed of at the municipal landfill site on a weekly basis.	

Cumulative impact post mitigation:	Minimal impact on indigenous terrestrial vegetation during mining.	
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low negative	

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

If the proposed mining expansion are not to proceed it is not expected that any significant detrimental impacts will occur on the indigenous vegetation of the site and surrounds and terrestrial biodiversity features of the site and surrounds and processes will continue as is.

(d) **Cumulative Impacts**

Cumulative impacts arise from the combined presence of several similar developments within an area which can affect the terrestrial biodiversity environment (flora and fauna). There are existing mining activities, livestock grazing and the adjacent N2 national road that also represents a source of disturbance and habitat loss, which when combined with the proposed development would result in some cumulative impact. However, when taken in context of the broader landscape, the cumulative impacts on botanical sensitivity are not likely to be highly significant given that no loss of significant natural habitats are expected. The natural habitats have already been significant transformed due to agricultural and mining activities, and the proposed activities will not lead to the fragmentation of indigenous vegetation corridors. The overall expected cumulative plant impact of the proposed mining expansion activities at the local and regional scale is therefore expected to be Low negative.

6. CONCLUSION AND RECOMMENDATIONS

The sampling and analysis of the site during the optimum season provides suitable data and results to present an informed decision on the local plant species. The lists of species for the site are based on those observed at the site as well as those likely to occur in the area based on their distribution and habitat preferences. This represents a sufficiently conservative and cautious approach. 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 species observed were recorded. Searches for listed species of conservation concern at the site were conducted. No plant SCC were recorded or will be impacted. None of the plant species listed in the screen tool report were recorded on the proposed mining expansion site.

The N2 national road lies along the northern border of the property and the site was previously used for heavy livestock grazing therefore Cynodon grass species and woody alien trees have encroached on most of the site, especially along the lower lying areas. At the moment there are still horses grazing on the lower lying areas in-between the N2 national road and existing fenced-off 5ha mining permit area.

The proposed additional mining area of 8ha located immediately north, east and south of the existing 5ha mining permit area was also historically brush cut throughout the years and this has increased the spread of the woody alien vegetation infestation like *Acacia mearnsii, Acacia saligna, Acacia cyclops* and pine trees. In-between the woody alien trees there are still remnants of indigenous vegetation species however it is evident from the site investigation that due to disturbances there are limited diversity in the remaining indigenous vegetation species.

According to CapeNature (2024) 2023 Western Cape Biodiversity Spatial Plan and Guidelines the lower lying northern and eastern proposed expansion areas have been mapped as Terrestrial CBA 1 area and the higher lying southern expansion areas as Other Natural Area. The southern slope at the foothill of the Hoogmoed se Berg has returning indigenous vegetation as part of the North Langeberg Sandstone Fynbos (Least Concern) vegetation type. The VEGMAP of South Africa 2024 shows Albertina Sand Fynbos (Endangered) mapped for the lower lying areas, however the lower lying areas as previously mentioned have been significantly transformed.

During the site visit and as per investigation of historical google earth imagery, it is evident that all indigenous vegetation has been previously cleared on the existing 5ha mining permit site (currently mapped as Terrestrial CBA1) during previous ploughing and planting of grass for livestock grazing and more recently ongoing mining and brush-cut activities. Also within the lower lying parts of the proposed mining expansion area also currently mapped as Terrestrial CBA 1, the original indigenous vegetation has been completely transformed due to previous ploughing and planting of grass for livestock grazing and ongoing periodic brush cutting to maintain conditions suitable for livestock grazing. The returning indigenous vegetation species is not representative of Albertinia Sand Fynbos habitat and the degraded state of the applicable areas has no significant ecological connectivity value. It is therefore not expected that the proposed mining expansion will lead to the loss of Terrestrial CBAs as it appears that the condition and status of the mapped Terrestrial CBA1 was not groundtruthed and therefore not correctly mapped as Terrestrial CBA1. No plant Species of Conservation Concern was recorded on the site and none is expected to occur in viable numbers on the site due to previous and ongoing disturbances to the indigenous vegetation on the site. The site also shows clear signs of significant transformation such a *Cynodon* grass grazing that was previously established for livestock grazing which is still ongoing. The vegetation within these areas is characterized and dominated by pioneer grasses and does not represent the vegetation structure of Albertinia Sand Fynbos. Given the transformed state of the existing 5ha mining permit site and the expected overall loss of less than 300m² of homogenous indigenous vegetation and no Species of Conservation Concern, taken in context of the broader landscape, the cumulative impacts of the proposed mining activities on indigenous plant species potentially associated with Albertinia Sand Fynbos of the site on a regional and local scale would not be significant and can be rated as **Low Negative to Negligible.**

The higher lying areas of Hoogmoed se Berg as part of the proposed mining expansion site which falls within the mapped North Langeberg Sandstone Fynbos vegetation area has remnants of this vegetation type remaining which can be described as in a moderately good to

significantly degraded state due to historical and ongoing brushcutting and most likely fires which has led to fragmentation, open grass areas and significant alien trees infestations. Given the historical and ongoing impacts within the higher lying areas of Hoogmoed se Berg where mining expansion is proposed it is expected that mining within this area will lead to the loss of ±2ha of indigenous vegetation and no Species of Conservation Concern as part of North Langeberg Sandstone Fynbos, taken in context of the broader landscape, the cumulative impacts of the proposed mining activities on indigenous plant species of North Langeberg Sandstone Fynbos on a regional and local scale would not be significant and can be rated as **Low Negative**.

The information gathered from the site survey does differs from the Environmental Screen report. As per the impact assessed done it is expected that the proposed mining expansion activities would have an overall **low negative** plant impact on low sensitivity area although the site was mapped having a medium plant sensitivity, by the screening tool.

Mitigation measures that must be implemented:

- Clearance of indigenous vegetation must be kept to a minimum clearly demarcating and maintaining the demarcation throughout the active mining phase.
- Before clearance of vegetation commences a qualified ECO/specialist must conduct search and rescue of all viable indigenous vegetation species which can be relocated outside mine area.
- Where necessary steep slope stairs (terracing) must be created along the quarry edges to slow down water runoff and prevent erosion.
- Where topsoil can be replaced it must not be compacted after spreading. Only topsoil as derived and conserved from the proposed mining area must be used to rehabilitate the impacted mining areas.
- Should any additional topsoil be required for rehabilitation purposes, it must be from neighbouring properties or alternatively sterilized accordingly. This is to ensure that any imported topsoil is free from soil pathogens, to prevent introduction of new pathogens to the region that could have a detrimental impact on indigenous vegetation.
- No waste pollution may occur due to the mining activities and all waste must be contained and disposed of at the municipal landfill site on a weekly basis.

No additional survey or further assessment is in the author's view recommended.

Provided that activities are restricted to the property and the mitigation measures to reduce the impacts of the activities are implanted, then the activities are not likely to result in long-term significant degradation of the receiving environment or significant net loss of plant species.

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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), Registration Number: 004415. 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 26 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.

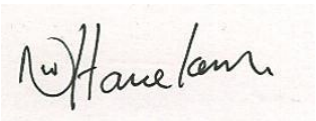
Areas of specialisation:	• Ecosystem (terrestrial and aquatic) monitoring and assessments • Design of monitoring programmes for ecosystems (terrestrial and aquatic) • Environmental Impact Assessments • River classification and environmental water requirements • Wetlands Delineation • River and Wetlands 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. Updated - October 2012 (Included Terrestrial and aquatic ecological assessments and water use authorization applications) • Baseline Biodiversity Survey And Wetland Delineation for ECCA Holdings: Cape Bentonite Mine on Erf 1412 Near Heidelberg. Prepared for: Shangoni Management Services Pry (Ltd). October 2014.

	• Freshwater Impact Assessment Laingsburg Flood Damage Repairs & Storm Water Infrastructure. 18 February 2016. • Ecological Assessment for Swartland Municipality - Upgrades To Voortrekker/Bokomo Road And Voortrekker/Rozenburg Road Intersections and Upgrade to the Diep River Bridge, Malmesbury on A Portion Of Erf 327, Malmesbury (Road) Erf 1530, Diep River Bridge Crossing, and Erf 1528, Property South of Diep River where Road Widening and Turning Circle Will Be Constructed. March 2016. (Freshwater Ecology Inputs and Water Use Registration) • Freshwater Impact Assessment. McGregor Bridge, Robertson Bridge and Willem Nels River Maintenance Management Plan. 24 June 2016. (Freshwater Ecology assessment and input as well as Water Use Registration) • Water Use Authorization Application Risk Matrix. Orange Grove Trust Vegetation Clearing and Agricultural Development on Portion 4 of Farm Glen Heatlie No 316, Worcester. 12 June 2017. (Freshwater ecological inputs in EIA process and Water Use Registration). • Water Use Authorization Application Risk Matrix Prepared For: Witzenberg Municipality Sand Mine Farm 1 Prince Alfred Hamlet. 28 March 2017. (Freshwater ecological inputs in EIA process and Water Use Registration). • Proposed Hartmanshoop Agri Vegetation Clearing Project and Irrigation on Erf 686, Laingsburg. 12 August 2017. (Freshwater ecological inputs in Water Use Registration). • County Fair: Hocraft Abattoir And Rendering Facility Waste Water Treatment Works “CF Hocraft WWTW” Mosselbank River Second Quarter 2018 Biomonitoring Report. June 2018. (Done quarterly biomonitoring for the last three years).

CERTIFICATION

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



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