

**REMAINDER OF PORTION 3 OF THE FARM
BOVEN LANGE VALLEY NO 191,
GEORGE**

APPLICATION FOR:

CONSENT USE & PERMANENT DEPARTURE



CLIENT: PVVK MANAGEMENT SERVICES
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SECTION A : BACKGROUND

1. BACKGROUND

Remainder of Portion 3 of the Farm Boven Lange Valley No 191 (hereafter referred to as "The Application Area", is currently zoned "Agricultural Zone I", in terms of the George Zoning Scheme by-Law (2023), and is 9.0516 Ha in extent. The property is located along the N2 National Road in between Wilderness and Sedgefield, George.



FIGURE 1: REM PORTION 3 OF FARM 191 - LOCALITY

The applicant envisages establishing a sand quarry on the application area, and the Department of Minerals & Energy granted Environmental Authorisation on 5 August 2022. The EA was taken on appeal, and on 4 July 2023 the Department of Environmental Affairs dismissed the appeal. Copies of the environmental decisions are attached as **ANNEXURE A**.

The application area is currently zoned Agriculture Zone 1 and measures ±9.05 hectares in extent. A "Quarry" is not a primary land use right in "Agriculture Zone 1", and therefore a



consent use approval is required to allow the proposed sand Quarry. This report serves as the motivation report for the consent use application.

thus, the proposed sand quarry will be a consent use thereof. The proposed extent of the mining activities is ±5.37 hectares. The estimated duration of the proposed mining activities is approximately 20 years. The Langvlei Dunes area contains suitable resources for building sand and it is an established sand mining area.

1.1. Pre-Application Consultation

The required pre-application consultation did take place with George Municipality. A copy of the minutes of the pre-application consultation meeting is attached as **ANNEXURE B**, and the main aspects raised during the pre-application consultation is summarised in the table below, with a reference of where the aspects have been :

Comments	Response
Written consent must be obtained from SANRAL for the proposed development and said access. It is advisable that this comment is acquired before the application is submitted.	Refer ANNEXURE J
NID to be submitted to Heritage Western Cape.	Refer
Consider visual impact of the development specially from the N2. The proposed use is visually intrusive from the road. To consider the necessary mitigations and beautifying the site (especially as seen from the N2 rout) – to be motivated and indicated on site layout plan.	
Need to confirm and indicate if any structures will be erected (to show location, extent, and internal layout). Building line relaxations must be applied for where necessary.	
Confirm duration of sand mine.	
Need to address compliance with MSDF 2023, SPLUMA, Zoning Scheme etc. and Rural Guidelines	
Site Layout Plan must contain topographical features and landscape measures in terms pf the proposed mining activity	



Comments	Response
All environmental elements and buffers must be indicated on the Site Layout Plan. To also consider all watercourses and wetlands	
The application must be prepared in line with the ROD, Environmental authorisations as well as EMP.	
Comments from Western Cape Agriculture will be required as part of the PPP process.	
Comments from DEA&DP (planning and environmental) & SANPARKS will be required as part of the PPP process	
Rehabilitation and decommissioning of the mine to be clearly established	
Access is restricted to the N2, requiring SANRAL approval	

2. THE APPLICATION

Marike Vreken Urban and Environmental Planners have been appointed by **Pieter Visser Trust (IT191/2001)** (refer to **ANNEXURE C** *Power of Attorney* & Company Resolution) and **ANNEXURE D: Application Form**) to prepare and submit the required application documentation for:

- (i) A consent use for a “quarry” on Remainder of Portion 3 of the Farm Boven Lange Valley No 191, Division George, in terms of Section 15(2) (o) of the George Municipality By-Law on Municipal Land Use Planning (2023).
- (ii) A Permanent Departure to relax the lateral building lines on Remainder of Portion 3 of the Farm Boven Lange Valley No 191, Division George, from 20m to 12.7m to allow a site office in terms of Section 15(2)(b) of the George Municipality By-Law on Municipal Land Use Planning (2023).
- (iii) Application for a permission in terms of the Zoning Scheme, in terms of Section 15(2)(g) of the George Municipality By-Law on Municipal Land Use Planning (2023), to approve a Site Development Plan for the proposed sand Quarry.

3. PROPERTY DESCRIPTION, SIZE & OWNERSHIP

A copy of the Title Deed (T22778/1948) that includes the information outlined below is contained in **ANNEXURE E**. A copy of the SG Diagram (SG No. 6155/48) of the property is included in **ANNEXURE F**.



Title Deed Number: T22778/1948

Title Deed Description: The Remainder of Portion 3 of the Farm No 191 in the Municipality and Division of George, Western Cape, Province.

Property Owner: Pieter Visser Trust (IT191/2001)

Title Deed Restrictions: Condition B of the Deed contain some conditional restrictions. These conditions will not be applicable if the Controlling Roads Authority has granted permission for the proposed activity. The restrictive conditions entail:

- **Condition B(1):** *The land may not be subdivided without the written approval of the Controlling Authority as defined in Act Number 21 of 1940.*
- **Condition B(2):** *Not more than one dwelling house, together with such outbuildings as are ordinarily required to be used in connection therewith, shall be erected on the land except with the written approval of the Controlling Authority as defined in Act Number 21 of 1940.*
- **Condition B(3):** *The land shall be used for residential and agricultural purposes only and no store or place of business or industry whatsoever may be opened, or conducted on the land without the written approval of the Controlling Authority as defined in Act Number 21 of 1940*
- **Condition B(4):** *No building or any structure whatsoever shall be erected within a distance of 300 Cape Feet from the centre line of the national road, without the written approval of the Controlling Authority as defined in Act Number 21 of 1940.*

The Provincial Roads Authority is the "Controlling Authority" and once this Department's comments have been received, these restrictive conditions will not be applicable.

A conveyancer Certificate is attached as **ANNEXURE G**. The Conveyancer's Certificate confirms that there are no restrictive conditions that prevent the proposed sand quarry.

Bonds: Nedbank (see Bond holder consent attached as ANNEXURE **ANNEXURE H**)

Property Size: 9.0516 (Nine Comma Zero Five One Six) hectares

Servitudes: There are no servitudes registered over the application area.



SECTION B : DEVELOPMENT PROPOSAL

4. DEVELOPMENT SPECIFICATIONS

4.1. Development Description: Land Use
(Plan 2: Site Development Plan)

The applicant proposes the establishment of a sand quarry operation covering an area of approximately 5.3697 hectares. The sand quarry will be operational for 20 years. The figure below illustrates the proposed Site Development Plan (SDP):



FIGURE 2: SITE DEVELOPMENT PLAN



The project includes the development of essential site infrastructure, featuring two 6 x 6m (36m²) site offices; a 3m x 22m weighbridge; and a dedicated access road. To ensure environmental compliance and minimise impact on neighbouring land uses, the development aims to adhere to building lines and setbacks, specifically maintaining a 60m buffer from the Garden Route National Park to the north, and the N2 National Road to the south.

4.2. Access

Access to the site will be coordinated with SANRAL, with the potential entry point located at the 46.6km markers on the N2. A key component of the operational phase involves a commitment to environmental stewardship through the progressive removal of alien vegetation across the mining area and the rehabilitation of the 60m southern buffer zone back to its natural state.

According to the Traffic Impact Assessment (TIA) (see **ANNEXURE I**), it is recommended that site access be consolidated to a single, primary point at Access 48 (km 46.10). This strategic consolidation aims to optimise traffic flow and ensure the highest safety standards for the N2 corridor. Preliminary consultations indicate that SANRAL is in favour of this specific access location (see **ANNEXURE J**), and the final design and implementation will be conducted in strict accordance with their technical requirements and final formal comments.



FIGURE 3: PROPOSED NEW SANRAL SUPPORTED ACCESS



FIGURE 4: CURRENT FARM ACCESS

5. STATUTORY APPLICATIONS

The following land development applications are lodged in terms of the George Municipality Bylaw on Municipal Land Use Planning (2023) to achieve the desired outcome.

5.1. Consent Use

The application area is zoned as "Agricultural Zone I" in terms of the George Zoning Scheme Bylaw (2023). The proposed rights for a "quarry" are allowed as a consent use on a property zoned "Agricultural Zone I". The George Zoning Scheme Bylaw defines a "Quarry" as:

"...a place from which dimension stone, rock, construction aggregate, riprap, sand, gravel or slate is excavated from the ground. A quarry is a type of open-pit mine that produces building materials and dimension stone..."

To allow for the proposed land uses on Portion 3 of the Farm Boven Lange Valley No 191 the following applications are lodged:

- (i) A consent use in terms of Section 15(2)(o) from the George Municipality: By-Law on Municipal Land Use Planning (2023) on Portion 3 of the Farm Boven Lange Valley No 191 for a "quarry" to allow for a sand mine operation.



5.2. Permanent Departure

The George Zoning Scheme Bylaw (2023) prescribes 20m building lines for an "Agriculture Zone I" property with a property size between 5 hectares and 10 hectares. The proposed site office is located within the prescribed building lines.

Application is therefore made in terms of Section 15(2) (b) of the George Municipality: By-Law on Municipal Land Use Planning (2023), for a permanent departure to allow for the relaxation of the eastern lateral building line from 20m to 12.7m to allow for the proposed structure to be used for a site office.

5.3. Approval of a Site Development Plan

Clause (e) of the prescribed development parameters for a "quarry" as per the George Zoning Scheme bylaw states that a Site Development Plan must be submitted for the municipality for approval. Application is therefore made for a permission in terms of the Zoning Scheme, in terms of Section 15(2)(g) of the George Municipality By-Law on Municipal Land Use Planning (2023), to approve a Site Development Plan for the proposed sand Quarry on the application area.

5.4. George Municipality Zoning Scheme By-law (2023)

The George Municipality Zoning Scheme By-Law (2023) sets out certain development parameters for 'Agriculture Zone I' that need to be adhered to:

Development Parameters		Compliance
Primary Use: Agriculture	Agriculture	Comply
	"quarry"	Consent Use
Building lines	Street Building Line (southern) 60m	Comply
	Side Building Line (Eastern) 20m	Departure 12.7m
	Side Building Line (Western) 9m	Comply
	Rear Building Line (Northern) 60m	Comply



Development Parameters		Compliance
Height	(i) The height of a dwelling house may not exceed 8, 5 metres. (ii) Agricultural buildings other than dwelling houses may not exceed a height of 15 metres (iii) Earth banks and retaining structures that are in the opinion of the Municipality associated with bona fide agricultural activities are exempt from the general provisions in this regard in this By-law.	All building is <8.5m in height <p style="text-align: center;">Comply</p>

6. SERVICES INFRASTRUCTURE

The application area is not connected to the municipal services network. The Applicant plans to make use of self-sustainable methods such as boreholes, rainwater harvesting systems, solar energy and septic tanks to ensure there is sufficient basic infrastructure on site.

6.1. Storm Water Management

Storm water management is addressed in Par 19.9 of the Environmental Management Plan (EMP). The EMP is attached as **ANNEXURE K** to this report. Although there are no drainage lines, watercourses or wetlands in the proposed Kleinkrantz Sand Quarry the following measures are required to ensure that no silt is leaves the site in storm water run-off:

- (i) After mining in each Phase, the slopes at the edges of the quarry must be shaped and sloped to ensure that they are not steeper than 1:2.5
- (ii) The slopes must be protected from erosion by placing nets or offcut timber planks at right angles to the slope or by using soil saving sausages spread and pegged along the contours.
- (iii) No depressions should be left in the mining floor. A surface slope (even if minimal) must be maintained across the quarry floor towards the south
- (iv) The southern boundary of the quarry is 60 metres away from the N2 National Road so there is a very low possibility of any silt leaving the site
- (v) Stormwater may accumulate for a while on the quarry floor but will then normally drain into the underlying sand.
- (vi) If really necessary silt can be prevented from leaving the site by means of silt retention ponds.

6.2. Electrical Supply

There is an existing Eskom Power Line and Transformer located on the property adjacent to the west (same ownership). The owners want to potentially connect with this Eskom transformer in the future, to provide additional electrical connections to the farm.

SECTION C :

CONTEXTUAL INFORMANTS

7. LOCALITY

(Plan 1: Locality Plan)

The application area is located along the N2 National Road, between George and Knysna in the Rondevlei area. The application area is situated directly north of N2 National Road near the 46 km marker on the N2 National Road and obtains access directly from N2. Neighbouring the Heritage Garden and Bakery across the N2 and down the road from the Kleinkrans quarry.

The GPS coordinates for the centre of the properties are 33° 59'48.63"S and 22°40'41.71"E.



FIGURE 5: LOCALITY



8. CURRENT LAND USE & ZONING

8.1. Land Use

The application area is currently vacant. There are 2x Jojo tanks on the southwestern corner of the property and currently the tanks do not have any specific use.

8.2. Zoning

Remainder of Portion 3 of the Farm Boven Lange Valley No 191 is currently zoned as "Agricultural Zone I" in terms of the George Zoning Scheme By-Law (2023).

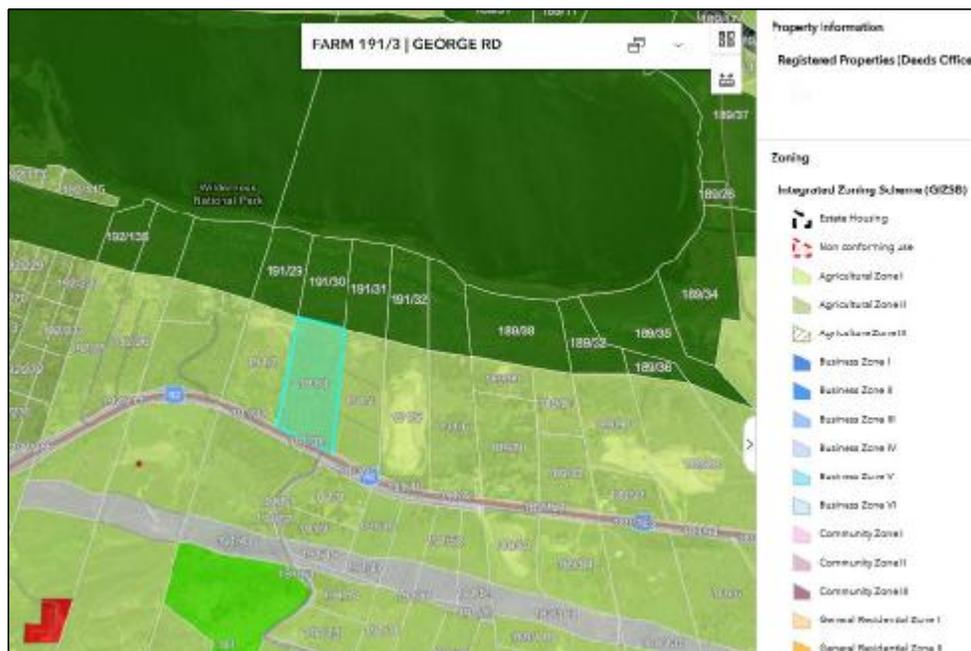


FIGURE 6: EXTRACT GEORGE ZONING MAP

9. CHARACTER OF THE AREA

The property is situated outside the urban edge of George within a diverse rural landscape that balances agricultural business zones, tourism, and resource extraction. The northern boundary is defined by the Garden Route National Park (formerly Wilderness National Park), while the immediate vicinity features prominent tourism attractions such as Heritage Gardens and Bakery, Acrobranch, 'Oysters R Us,' and various adventure facilities like quad biking and 4x4 routes. Tourist accommodation is also well-established, including the 'Ichibi Resort' to the west and 'Ubuntu' to the southwest.

The local character is already defined by mining activities; the property immediately adjacent to the western boundary is successfully rehabilitated sand mine, and an active sand mining operation exists just down the road to the east.

The proposed development is, therefore, entirely consistent with the existing land-use pattern of the area, serving as a temporary and reversible industrial activity that coexists alongside the region's established tourism and residential functions.

The figure below shows the land uses in close proximity to the application area (also attached as **Plan 3**).



FIGURE 7: LAND USE OF THE AREA

10. SITE CHARACTERISTICS

10.1. Built Environment

As stated in **par.8.1** There are 2x Jojo tanks on the farm, which will be used for the proposed land uses.

10.2. Topography

The general topography of the area is dictated by the rounded dunes that run east-west along the coast between Wilderness and the Western Head at Knysna. The dunes in this area back onto the lakes of the Wilderness Lakes Area.

With regard to the application area, the site is characterised by a strong ridgeline, which forms a division between the dunes south of the application area and the Bo-Langvlei.

The southern boundary of the application area abuts the N2 National road, and this is also the lowest point of the site and is $\pm 55\text{m}$ above sea level. From here the topography rises to approximately 95m above MSL to the north east of the site.

Although the application area abuts the Wilderness National Park (lakes areas), there are no natural watercourses on the site. The drainage of the site occurring in the form of sheet flow over a stable geological basis with no signs of any erosion being displayed.

Farm RE3/191 is located north of the N2 National Road. There will be a 60 metre buffer area between the proposed sand mine and the N2. This buffer area is covered in trees. The Kleinkrantz Sand Quarry will not be visible from the N2.

10.3. CBA & Ecological Support Areas & Threat Status

Western Cape Biodiversity Spatial Plan 2017: Critical Biodiversity Areas 1. The Western Cape Biodiversity Spatial Plan (WCBSP) is the product of a systematic biodiversity planning assessment that delineates Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) which require safeguarding to ensure the continued existence and functioning of species and ecosystems, including the delivery of ecosystem services, across terrestrial and freshwater realms. These spatial priorities are used to inform sustainable development in the Western Cape Province. This product replaces all previous systematic biodiversity planning products and sector plans with updated layers and features.

The image below is an extract from the Biodiversity Assessment that was done for the application area (**ANNEXURE L**) and indicates that the application area does not fall within any protected or terrestrial areas:

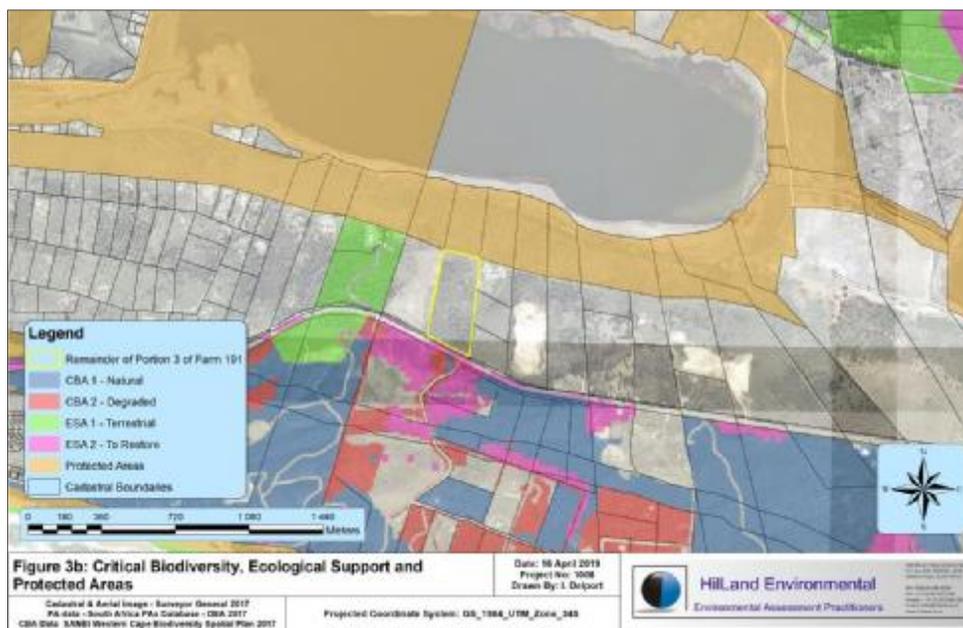


FIGURE 8: EXTRACT - BIODIVERSITY ASSESSMENT: PROPOSED KLEINKRANTZ SAND MINE, PORTION 3 OF FARM 191, WILDERNESS, NOVEMBER 2019

According to the Western Cape Biodiversity Spatial Plan (2017), the application area is not encumbered by any Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs). The footprint does not fall within any identified degraded, terrestrial, or natural priority

areas, confirming that the proposed sand mine is situated on land of low conservation sensitivity. This allows for the optimisation of the site's mineral resources without compromising the Province's biodiversity targets or the ecological integrity of the broader regional network.

10.4. Vegetation

The application area is covered almost entirely by alien vegetation, including pine trees, blue gums and black wattle. A small portion of indigenous vegetation exists centrally on the application area. This indigenous vegetation covers less than 5% of the total area. Figure 13 shows the existing vegetation on the site.



FIGURE 9: EXISTING VEGETATION ON THE SITE

11. VISUAL IMPACT

Quinton Lawson, Architect and Bernard Oberholzer, Landscape Architect were appointed to conduct a Visual Impact Assessment for the proposed sand quarry. A copy of the Visual Impact Assessment is attached as **ANNEXURE M**. This VIA concluded that: *"...Taking the above into account, the cumulative visual impact significance is considered to be medium-high before mitigation, medium after mitigation with buffers, as currently proposed, and low after rehabilitation..."*

Mitigation measures that were recommended include:

- (i) The buffer on the northern boundary with the National Park should be 60m, as currently indicated, the purpose being to retain the visual integrity of the existing ridgeline, which separates the proposed mining activity from the National Park.
- (ii) The buffer (boundary pillar) on the eastern boundary to be 60m in the northern section, as currently proposed, reducing to 9m in the southern section.



- (iii) The mature trees that screen the property should be retained during the mining operation, and phased out as part of the successive rehabilitation of the site. Only local species should be used in the rehabilitation work.
- (iv) Mining activities to be during normal working hours to avoid the impact of lights, noise and truck traffic at night on local residents.
- (v) Only essential direction signage to be provided at the entrance to the site on the N2, and no billboards to be permitted.

The visual impact mitigations have been addressed in the EMP, hence the proposal's visual impact will be adequately mitigated.

12. HERITAGE IMPACT

The development of larger than 5000m² on the site triggers the need for approval from Heritage Western Cape. A Heritage ASHA Consulting (Pty) Ltd was appointed to conduct a Heritage Impact Assessment (HIA) as part of the Environmental Authorisation process. A copy of this HIA is attached as ANNEXURE N.

Heritage Western Cape approved the proposed sand quarry from a heritage perspective, and a copy of the authorisation from Heritage Western Cape, dated 7 June 2019, is attached as **ANNEXURE O**. It is therefore clear that the proposal will not have any significant Heritage Impacts.

13. EXISTING POLICY FRAMEWORKS

13.1. Western Cape Provincial SDF (2014)

The Western Cape Provincial SDF was approved in 2014 by the Western Cape Parliament and serves as a strategic spatial planning tool that "communicates the province spatial planning agenda".

The PSDF sets out a policy framework within which the Western Cape Government will carry out its spatial planning responsibilities. Each of the three spatial themes contributes to the achievement of the Western Cape's strategic objectives. These policies are categorised into three themes, namely:

- **Resources:** Sustainable use of spatial assets and resources
- **Space Economy:** Opening up opportunities in the Space Economy
- **Settlement:** Developing Integrated and sustainable settlements.

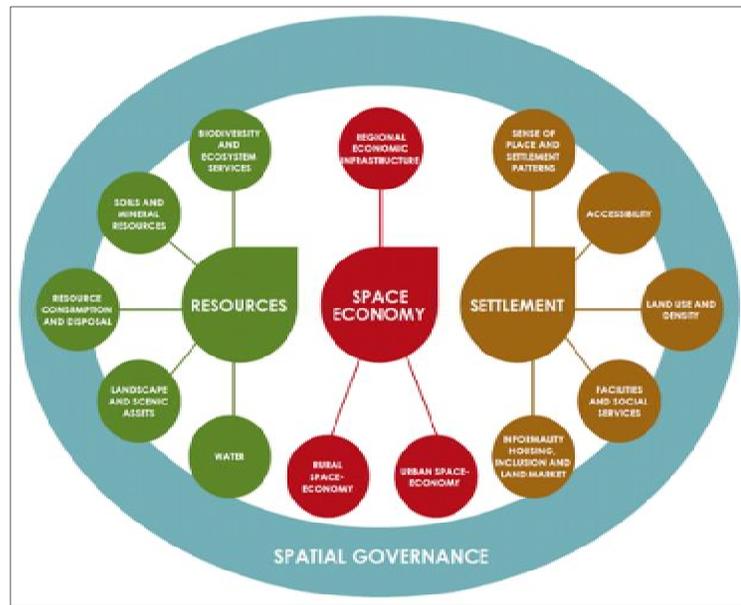


FIGURE 10: POLICIES APPLICABLE TO THE PROPOSED DEVELOPMENT

The Western Cape Provincial SDF was approved in 2014 by the Western Cape parliament and serves as a strategic spatial planning tool that "communicates the province spatial planning agenda".

The proposed development compliments the SDF spatial goals that aim to take the Western Cape on a path towards:

- (i) Greater productivity, competitiveness and opportunities within the spatial economy;
- (ii) More inclusive development in the urban areas;
- (iii) Strengthening resilience and sustainable development

However, it is important to note some of the key policies laid down by the Western Cape PSDF have a bearing on this application.

PROTECT BIODIVERSITY AND ECOSYSTEM SERVICES	DEVELOPMENT'S RESPONSE
<p>3.To complement Cape Nature's protected area expansion strategy and Stewardship programme, SDFs should highlight priority areas outside the protected area network that are critical for the achievement of the Province's conservation targets. SDFs need to develop strategies and policies for securing these areas, inclusive of incentivising private landowners to contribute to the Western Cape's biodiversity network. Similarly municipal zoning schemes should incorporate measures to secure the priority biodiversity network (e.g. delineation of CBA overlay zones, development bonuses). The updated Provincial Rural Land Use Planning and Management</p>	<p><i>By implementing a 60m ecological buffer adjacent to the Garden Route National Park and committing to the progressive eradication of alien invasive species, the applicant is actively contributing to the Province's biodiversity network on private land. The proposed sand mining operation serves as the primary mechanism to fund the restoration of this ecological infrastructure.</i></p>



PROTECT BIODIVERSITY AND ECOSYSTEM SERVICES	DEVELOPMENT'S RESPONSE
Guidelines need to provide options for implementing this policy.	

Planning Implication:

Informed by Policy R1 (Statement 3) of the Western Cape PSDF, the planning implications for this application centre on the creation of a functional "conservation transition zone" between the proposed quarry and the Garden Route National Park. By formalizing the 60m setbacks as ecological buffers rather than mere building lines, the proposal ensures the long-term protection of the provincial biodiversity network. This spatial arrangement serves as a deliberate planning tool to mitigate edge effects and noise, effectively securing the integrity of the adjacent protected area while allowing for productive land use on the application site.

Furthermore, the approval of the Consent Use carries the implication of a "net-gain" for the environment, as the sand mining operation serves as the necessary economic driver to fund the progressive eradication of alien invasive species. From a land-use management perspective, the mining is a temporary and reversible activity; therefore, the planning conditions will ensure that the site is returned to a superior ecological state compared to its current condition. This approach directly fulfils the provincial mandate to incentivize private landowners to contribute to biodiversity targets, turning a resource extraction project into a viable mechanism for environmental restoration.

13.2. Western Cape Land Use Planning: Rural Areas Guidelines (2019)

The Western Cape Land Use Planning: Rural Areas Guideline was approved by the Provincial Minister on 3 March 2019 and forms part of the roll-out of the PSDF; the objectives Rural Areas Guideline is to:

- To promote sustainable development in appropriate rural locations throughout the Western Cape and ensure that the poor share in the growth of the rural economy.
- Safeguard priority biodiversity areas and the functionality of the Province's life-supporting ecological infrastructure and ecosystem services (i.e. environmental goods and services).
- To maintain the integrity, authenticity, and accessibility of the Western Cape's significant farming, ecological, cultural and scenic rural landscapes, and natural resources.
- To assist Western Cape municipalities to plan and manage their rural areas more effectively and to inform the principles of their zoning schemes and spatial development frameworks in a proactive manner.
- Provide clarity to all role players and partners (public and private) on the type of development that is appropriate beyond the current built-up areas, suitable

locations where it could take place, and the desirable form and scale of such development.

- Be viewed as a gender mainstreaming tool which will move the Western Cape further along the trajectory towards the achievement of equality, particularly the youth and gender equality imperatives in rural land use planning.

GUIDELINES FOR RESPECTIVE LAND USES

Development in rural areas should not:

- have a significant negative impact on biodiversity, ecological system services or the coastal environment;
- lead to the loss or alienation of agricultural land or has a cumulative impact thereupon;
- compromise existing or potential farming activities;
- compromise the current and future possible use of mineral resources;
- be inconsistent with the cultural and scenic landscape within which it is situated;
- lead to inefficient service delivery or unjustifiable extensions to the municipality's reticulation networks;
- impose real costs or risks to the municipality delivering on their mandate; and
- Infringe on the authenticity of the rural landscape.

The Western Cape Government's approach to managing development pressures for rural land uses placed under the following categories:



FIGURE 11: WCG RURAL LAND USE CATEGORIES



The proposed land uses would be categorised as:

- **Agriculture**
- **Tourist & Recreational Facilities**
- **Rural Business**

Agriculture: As the foundation of the Western Cape's rural economy, the WCG approach to Agriculture is to: promote consolidation of farming landscapes and prevent their fragmentation; provide for land and agrarian reform; improve the economic viability of farming by facilitating diversification of agricultural production; promote enterprise opportunities within the food system and promote sustainable farming practices.

The objectives for this category as per the guidelines are:

- Protect agriculture as primary land use in the rural landscape.
- Restrict the fragmentation of agricultural landscapes and promote consolidation, except for small-scale farming enterprises for land reform purposes.
- Protect, maintain and enhance viable agricultural units and encourage sustainable farming practices.
- Provide for small-scale farming and facilitate land and agrarian reform.
- Improve the economic viability of farms through the intensification and diversification of agricultural production and improve enterprise opportunities within the food system.
- Improved food resource management (availability of food/food security) and an inclusive food economy (assistance to access to food).
- Sustainable land management is to be tested and monitored
- Encourage the economic viability of agricultural enterprises through the introduction of non-agricultural land uses including tourist accommodation and facilities and additional dwelling units

Tourist & Recreation Facilities: Towards diversifying the Western Cape's rural economic base into the tourism and recreation sectors and developing these sectors on a sustainable and equitable basis – the WC G approach to tourism and recreational facilities in rural areas is to facilitate appropriate investment in these sectors across the rural landscape.

The objectives for this category as per the guidelines are:

- To diversify the Western Cape's rural economic base into the **tourism and recreation sectors**, and develop these sectors on a sustainable and equitable basis.



- To offer a range of appropriate nature, cultural and Agri-based rural tourism facilities, and recreational opportunities across the rural landscape (e.g. animal sanctuary, paintball, shooting ranges, and conference facilities).
- To provide citizens access to resources, the coast and the rural landscape.

Rural Business: Towards strengthening the rural economy, the WCG approach to businesses in rural areas is to facilitate the development of businesses serving the needs of rural communities and tourists, as well as agricultural production, in suitable locations throughout the landscape.

- To facilitate the development of rural businesses serving the needs of local communities, **rural tourists** and agricultural production.
- To provide guidance on suitable locations for **appropriate development along main tourism routes**.

Planning Implication:

The application is consistent with the provincial guidelines for "resource-dependent" land uses. As a quarry is tied to a specific localized mineral deposit, it is an appropriate "Consent Use" within an Agricultural zone. The proposal adheres to the guidelines by ensuring:

- Reversibility: The land will be rehabilitated back to a natural/productive state.
- Limited Impact: The site infrastructure (office/weighbridge) is minimal and grouped to prevent agricultural fragmentation.

13.3. Garden Route Regional Spatial Development Framework (2019)

The Garden Route (Southern Cape) Regional Spatial Development Framework is still in draft form, but nevertheless, it provides guidelines for development planning on a regional scale in the Garden Route District.

The 2014 Provincial Spatial Development Framework ('PSDF') identified three distinct urban priority regions in the Western Cape which are responsible for driving considerable economic growth and development in the province. These urban priority regions are 1) the Greater Cape Functional Region, 2) the Greater Saldanha Region, and 3) the Southern Cape Region.

To give effect to the PSDF, regional-scale spatial plans have been created for these urban priority areas, which include this Regional Spatial Implementation Framework for the Southern Cape ('SC RSIF'). This plan has as its **core objectives**:

- the stimulation of **inter-municipal growth and development opportunities**;
- to better support an **integrated, regional approach to sustainable development**, and
- **Urban and rural area management** practices.



The Southern Cape region is identified as being a provincial leisure and tourism coastal belt and priority urban functional region, with Mossel Bay, **George**, Knysna and Plettenberg Bay, and the greater Oudtshoorn area as **regional centres** (*of different function and hierarchy*) providing clustered facilities and services. The PSDF directs that these towns should be prioritized for growing the provincial economy through regionally planned and coordinated infrastructure investment.

The **purpose** of the Southern Cape Regional Plan is to:

- [a] Provide a **coherent spatial vision** for the Southern Cape functional region taking into account the environmental, social and economic opportunities and constraints;
- [b] Provide **guidance** on the promotion of a rational and **predictable infrastructure, economic and land use planning within the region**;
- [c] taking a regional approach to address regional **environmental management**, regional **human settlement** provision, **economic development**, regional **infrastructure**, regional **transport**, **landscape character**, **sense of place preservation**, and **heritage**.
- [d] To give expression to the Provincial Spatial Development Framework, 2014, at the regional level:
 - Elaborate what it means for the Mossel Bay – George node being an **emerging regional centre** and **priority urban functional region** of Provincial significance, and what role these towns will play in the future growth and development of the region;
 - Elaborate what it means for the Wilderness to Plettenberg Bay corridor being a **leisure corridor** of Provincial significance;
- [e] From an **environmental perspective**:
 - Identify **key assets** in the region
 - Gain a thorough understanding of the **environmental challenges, risks, opportunities and constraints** and how these interact with socio-economic development, settlement building, and economic development
 - Identify **regional priorities, objectives and strategies**, that comply with land use and bioregional planning principles as contained in the PSDF;
 - Take a **balanced approach** to development which ensures, on the one hand, the integrity of critical biodiversity areas whilst on the other hand, facilitating **appropriate socio-economic development** of the region.
 - Ensure the **protection of the sense of place** and beauty that the Southern Cape is so well known for.
 - Set out **Spatial Planning Categories** that reflect suitable land use activities by utilising the latest Critical Biodiversity Areas (CBA) mapping, as a primary informant.

- [f] From a **social perspective:**
 - Set out **proposals** with regard to issues of **food security** and **the loss of productive farm land to urban development** with particular reference to the National Department of Agriculture’s increased emphasis on this issue;
 - Provide spatial direction with respect to the placement and location – at a regional scale – of **human settlement** and low income housing opportunities, in response to environmental and economic constraints.
- [g] From an **economic perspective:**
 - A consideration of the **main sectors** that (currently and potentially) drive the Southern Cape Functional Region’s economy (in terms of **output and jobs**) and consider **associated value chains** that have organised themselves spatially;
 - An understanding of the nature and structure of the economy.

The figure below sets out the shared regional aspirations and values that will be used to underpin the Southern Cape Regional Spatial Development Framework going forward:



FIGURE 12: SOUTHERN CAPE RSIF – SHARED VALUES

The **Identified Regional Values** for the Southern Cape Region, includes:

1. **Economic, Social and Environmental Vitality & Resilience:** Enabling and Increasing economic growth and vitality, diversification, skills development, and a building a knowledge economy. Promoting spatial resilience and climate change mitigation and adaptation through the conservation of natural resources, sustainable resource management and capitalizing on the region's inherent potential.

Spatial Implication for George: The proposed plant nursery and animal treatment centre diversify the agricultural and recreational offerings on the application area, also offering the landowner an additional source of income from the application area.



The locality of the application area also allows for various modes of transportation for the different levels of income, ensuring positive economic growth as no additional spending for transportation is required.

2. **Rural Development & Diversification:** Promote sustainable agricultural practices, enhancing value chains, promoting agri-processing, rural economic diversification, and agricultural protection.

Spatial Implication for George: The proposed animal care centre offers a space for the training of rescue dogs, without resulting in noise nuisances on any nearby residential areas.

3. **People Centred Quality Development, Equitable Access, Spatial Justice & Efficiency:** People-centred development, creating quality living environments, enhancing the lives of the poor through poverty-alleviation and rural development strategies. Promoting equitable access to quality and affordable transport, facilities, services, and employment. Achieving spatial justice and efficiency by integrating and densifying our settlements, promoting continuity, compaction, and mixed use quality urban environments which are well consolidated, and function in a collaborative and complementing manner, reversing the apartheid spatial form.

Spatial Implication for George: - The proposed plant nursery offers gardening products, plants and accessories within close proximity to nearby residential areas such as Groeneweide Park and Kingswood.

4. **Enhance and Capitalise on Existing Environmental and Built Assets and Promote good growth management, development and maintenance practices:** Enhancing rural character, tourism potential, & sense of place of the region, thereby capitalizing on the assets of the region. Providing and maintaining the necessary regional and local infrastructure and guidelines for effective growth management in a financially and environmentally sustainable manner.

Spatial Implication for George: - **George as the service centre and highest order settlement**, Mossel Bay as an industrial, service, and tourism settlement, Knysna and Plettenberg Bay as the tourism and lifestyle settlements, etc

5. **Good Governance and Predictability:** Efficient, effective, and integrated management, good administration and governance;

In terms of the Spatial Concept for the Southern Cape, George is the primary service centre of the entire garden route region, offering most of the higher order services and facilities one would expect to receive in a metropolitan city, including modern airport infrastructure. It houses the primary administrative and regional offices of companies offering services in the region, but is also the heart of the vast golfing tourism offering, and a thriving agricultural sector specialising in export quality berries and other agricultural produce used in beer making and other agri-processing activities.



Conclusion:

George's role in the Southern Cape / Garden Route Region is that of the highest order settlement, with higher order services and facilities, and recommended higher residential densities and integrated clusters of development. *The proposal is considered to be consistent with the proposals and policies of the Draft Southern Cape Regional Spatial Development Framework.*

13.4. George Municipal SDF (2023)

The Municipal Spatial Development Framework 2023, for the period May 2023 to May 2027, is now deemed the adopted policy, which guides spatial growth and development in George. The MSDF provides clarity with respect to the manner in which land-use, development, and investment will be supported to build a spatial form which facilitates the vision and strategic objectives of the Municipality.

The George MSDF plays a leading role in the broader municipal planning system. The MSDF is the spatial expression of the IDP while at the same time, the MSDF couches the IDP within a long-term spatial vision for the municipal area that seeks to implement the vision, principles and policy directives set out in national and provincial legislation, strategies, policies and plans. Therefore, decisions made by sectors, spheres and entities of the public sector should be consistent with and work towards realising the vision, spatial strategies and plan set out in the MSDF.

George Municipality's vision, as encapsulated in its 2022 – 2027 Integrated Development Plan (IDP), is to be "a city for a sustainable future". To this end, the following 5 Strategic goals are identified within the George SDF:

- Develop and grow George;
- Safe, clean and green;
- Affordable quality services;
- Good governance and human capital; and
- Ensure good governance and human capital in George.

The SDF further states that "*Commercial land uses along the R102 need to provide a public interface, in order to attract interest from tourist and consumers alike*". The plant nursery shows public activities and landscaping from the plants and trees that are visible from the R102. These are interesting activities, together with the Padel Courts that attract tourist and local consumers.

The SDF earmarks the application area as "Agri-tourism". The SDF states that areas located along the R102 and R404 have been identified as areas to promote agriculture activities in combination with recreational and tourist related facilities.

- These zones seek to increase the viability of the airport support node.

- Agricultural industry aimed at improving tourist related activities and facilities to be encouraged. Consent uses allowed on Agricultural Zone I properties to be used as guide for development.
- The subdivision of agriculture land will not be supported in principle, unless in intensive agriculture area.
- Urban residential land uses not supported; areas used for non-urban activities.
- Visual Impact (scenic vista) and context character to be considered.

13.5. Wilderness Lakes Local Area Structure Plan

According to the Wilderness Lakes Local Area Structure Plan, the application area is earmarked as an “Agricultural area”. This spatial planning policy states that sand mines can be sensibly accommodated in this area. It should prevent nuisances and space extensive agricultural enterprises and ancillary on-farm activities (e.g. sand mines, feedlots, sawmills, etc.);

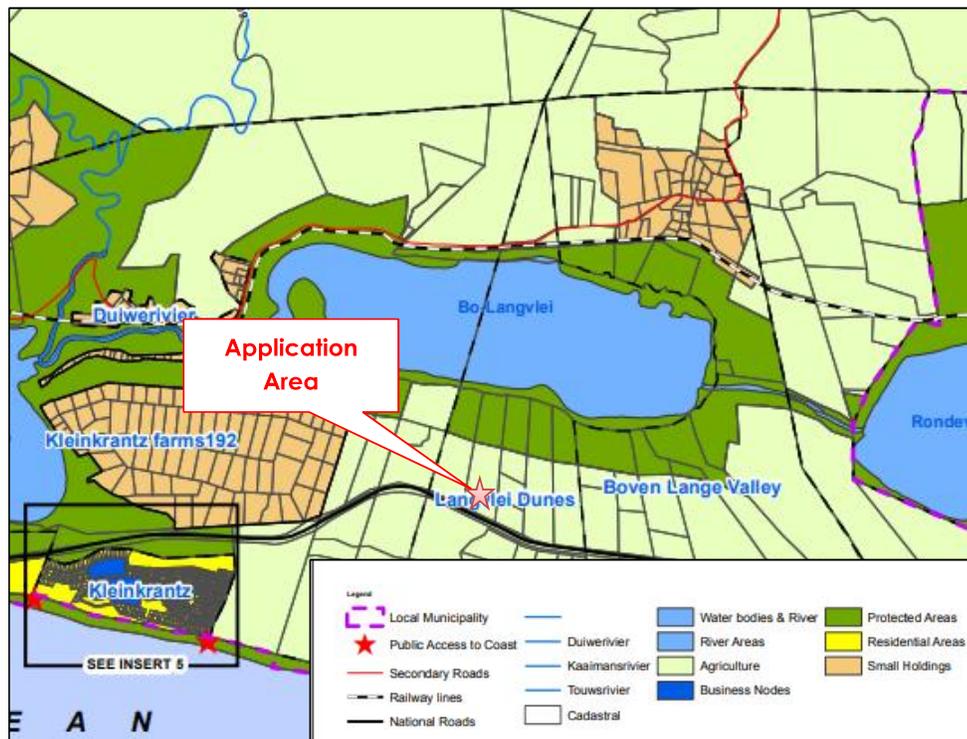


FIGURE 13: EXTRACT LOCAL SDF FOR WILDERNESS, THE LAKES, HOEKWIL AND THE ADJACENT AGRICULTURAL AREAS 2015

This quarry development is regarded as being consistent with the George Spatial Development Framework as it does not conflict with the purpose of the relevant designation in the spatial development framework and urban development is supported.



13.6. George Integrated Development Plan (2022/2027)

The IDP is a municipal planning instrument that drives the process to address the socio-economic challenges as well as the service delivery and infrastructure backlogs experienced by communities in the municipality’s area of jurisdiction. The IDP is the municipality’s principal five-year strategic plan that deals with the most critical development needs of the municipal area (external focus) as well as the most critical governance needs of the organisation (internal focus).

The adopted vision for the George IDP is:

A City for a Sustainable Future

To deliver affordable quality services, develop and grow George, keep George clean, safe and green; ensure good governance and human capital in George and to participate in George.

The George IDP identified five strategic objectives for the Municipal Area. These agreed-upon strategic objectives are:

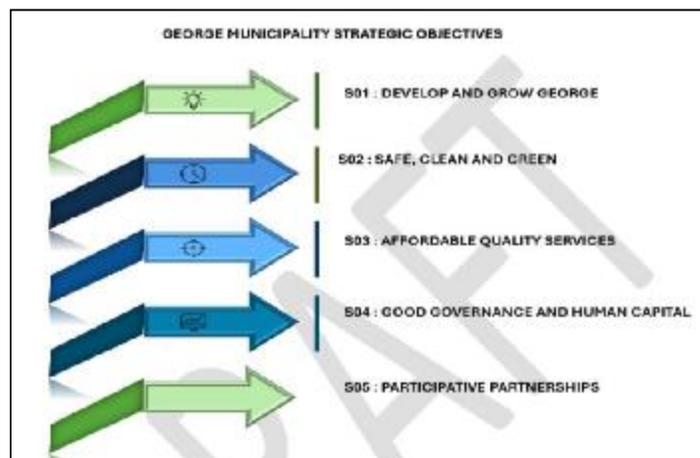


FIGURE 14: GEORGE MUNICIPALITY – IDP STRATEGIC OBJECTIVES

The application area is located within **Ward 4** of the George Municipality.

The proposed development is fundamentally consistent with the George Municipality Integrated Development Plan (IDP) 2022–2027. It specifically advances the 'Grow George' strategic objective by providing critical mineral resources to the local construction economy, thereby fostering job security. Simultaneously, the project gives effect to the municipality's Environmental Sustainability goals through the systematic eradication of alien invasive species and the establishment of high-quality ecological buffers. By balancing resource extraction with proactive environmental stewardship, the application represents a sustainable land-use model that supports the IDP’s vision for a resilient and inclusive local economy.



SECTION D :	MOTIVATION
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14. ASSESSMENT OF APPLICATIONS

14.1. Spatial Planning and Land Use Management Act, 2013 (16 of 2013)

Section 42 of SPLUMA prescribes certain aspects that have to be taken into consideration when deciding on an application. These are:

- (1) Development principles set out in Chapter 2 of SPLUMA
- (2) Protect and promote the sustainable use of agricultural land
- (3) National and provincial government policies the municipal spatial development framework; and take into account—
 - (i) the public interest;
 - (ii) the constitutional transformation imperatives and the related duties of the State;
 - (iii) the facts and circumstances relevant to the application;
 - (iv) the respective rights and obligations of all those affected;
 - (v) the state and impact of engineering services, social infrastructure and open space requirements; and
 - (vi) any factors that may be prescribed, including timeframes for making decisions.

14.2. George Municipality: By-Law on Municipal Land Use Planning (2023)

The George Municipality By-law on Municipal Land Use Planning (2023) as promulgated by G.N 7467 dated 12 August 2015 states in Section 65 the general criteria necessary for considering an application by the municipality.

It must be noted that the application has not undergone the notice phase of the application process and that the information below is the necessary information required by the municipality to process the application. The following criteria must be considered when evaluating the desirability of this land development application:

Criteria	Reference
The impact of the proposed land development on municipal engineering services.	<i>Par.6</i>
The integrated development plan , including the municipal spatial development framework.	<i>Par. 13.6</i>
The applicable local spatial development frameworks adopted by the Municipality.	<i>Par 13.4 & Par 13.5</i>
The applicable structure plans.	<i>n/a</i>
The applicable policies of the Municipality that guide decision-	<i>Par.14.2</i>



Criteria	Reference
making.	
The provincial spatial development framework.	Par.13.1
Where applicable, a regional spatial development framework contemplated in section 18 of the Act and a provincial regional spatial development framework.	Par. 13.3
The policies, principles and the planning and development norms and criteria set by the national and provincial governments;	Par.14.1
The matters referred to in Section 42 of the Act; Principles referred to in Chapter VI (6) of the Western Cape Land Use Planning Act ; and	Par.22
applicable provisions of the zoning scheme	Par.5.4
any restrictive condition applicable to the land concerned	Par 3

15. CONSISTENCY WITH SPATIAL PLANNING POLICIES

As described in **Par.13** of this report, the proposal are consistent with the relevant spatial planning policies. The proposal will allow the implementation of future planned development in the area.

16. CONSISTENCY WITH THE CHARACTER OF THE SURROUNDING AREA

The property is situated outside the urban edge of George within a landscape characterized by a diverse mix of rural-industrial, agricultural, and tourism-related land uses. While the surrounding area includes residential dwellings, bed and breakfasts, and adventure-based tourist attractions, it also functions as a critical resource zone, as evidenced by the established sand mining operation in close proximity. The presence of existing mining activity confirms that the local character is one that already successfully balances environmental conservation with essential mineral extraction. The proposed sand mine is consistent with this established character, as it is a resource-dependent activity that provides the raw materials necessary for the continued maintenance and growth of the local tourism and residential infrastructure.

To ensure the development complements the "slow-paced" nature of nearby tourist accommodation and the aesthetic value of the N2 corridor, the proposal incorporates substantial 60m setbacks and a commitment to progressive alien vegetation removal. These buffers act as both a visual and acoustic screen, mitigating potential impacts on the "sense of place" while actively improving the ecological health of the site. By integrating a necessary industrial activity with proactive environmental stewardship, the development ensures that the mining process is temporary and screened, thereby maintaining the integrity of the surrounding rural node. Consequently, given the unique locality and the mitigation measures proposed, it can be concluded that the development is a compatible and appropriate fit for the existing character of the area.



17. EXISTING RIGHTS

The proposed development will not impact negatively on the rights of the surrounding property owners and will not disturb or negatively influence the character of the area. The development proposal will contribute to the existing diverse mix of rural-industrial, agricultural, and tourism-related land uses in this area. The proposed development will have no impact on any landowners existing land use rights currently enjoyed. There will be no undue noise or disturbance and there will be no impact on the privacy of the surrounding property owners.

18. POSITIVE ECONOMIC IMPACT

The proposed sand mining operation will provide a significant and sustained boost to the local and regional economy of George and the broader Garden Route. This impact is categorized into the following key areas:

Support for the Construction and Infrastructure Value Chain: Sand is a fundamental raw material for the construction industry. By establishing a localized source of high-quality sand, the project ensures a reliable supply for municipal infrastructure projects, residential developments, and commercial construction in the George area. The proximity of the mine to the N2 reduces transport distances, which directly lowers the "per kilometre" cost of construction materials. This efficiency not only makes local development more affordable but also reduces the carbon footprint and road wear-and-tear associated with hauling materials from more distant sources.

Direct and Indirect Job Creation: During the operational phase, the quarry will provide direct employment opportunities for local residents in roles such as machinery operation, site management, weighbridge administration, and security. Beyond direct site staff, the project will support a significant number of indirect jobs within the transport sector, mechanical maintenance services, and environmental consultancy firms responsible for the alien clearing and rehabilitation monitoring. This creates a "multiplier effect" where the revenue generated by the mine circulates within the local George economy.

Investment in Ecological Infrastructure: A unique economic benefit of this application is the private investment into environmental restoration. The revenue from the sand mine will fund the extensive and progressive removal of alien invasive species across the property. This constitutes an investment in "natural capital," improving the long-term value and agricultural/tourism potential of the land. By rehabilitating the 60m buffer zone and the N2 corridor, the applicant is effectively subsidizing an environmental service that would otherwise be a financial burden to the landowner or the state.

Contribution to Municipal and Provincial Revenue: The operation will contribute to the local focus through the payment of rates, taxes, and service charges. Furthermore, by supporting the construction industry—a major driver of the Western Cape's GDP—the mine plays a strategic role in maintaining the economic resilience of the Garden Route during a period of rapid urban expansion and infrastructure demand.

19. ACCESSIBILITY

The application area is strategically located with direct frontage onto the N2 National Road, the primary transportation artery connecting George and Knysna. Primary access to the site is proposed via an existing entrance situated at approximately the 46.10km SANRAL road marker on the south-western portion of the property. This high level of connectivity ensures that the transportation of mineral resources can occur efficiently without requiring heavy vehicles to traverse minor rural gravel roads, thereby minimizing dust and noise impact on neighbouring residential and tourism properties. All access points will be subject to the final technical specifications and approval of SANRAL, ensuring that site ingress and egress adhere to the highest safety standards for the National Road network.

Access to the property is obtained directly via with the N2. This road is used as a consolidated access road, providing access to various rural residential properties.



FIGURE 15: ACCESSIBILITY



FIGURE 16: EXISTING ACCESS FROM N2 NATIONAL ROAD

20. REASON FOR PERMANENT DEPARTURE

The George Zoning Scheme Bylaw (2023) prescribed the following building line parameters for an "Agriculture Zone I" property: "20 metres from any boundary in respect of properties between 5 hectares and 10 hectares". The proposed site office for the sand mine encroaches on the eastern lateral building line.

Therefore, the reason for the permanent departures is to legalise this structure. The departure will legalise the proposed structure on the property and allow the owners to develop the sand mine and accompanying structures.

Development Parameters	Proposed Development
Street Building Line (southern) 20m	Comply
Side Building Line (eastern) 20m	Departure 1x site office
Side Building Line (western) 20m	Comply
Rear Building Line (northern) 20m	Comply



21. DESIRABILITY

The concept of “desirability” in the land use planning context may be defined as the degree of acceptability of a proposed development on land units concerned. This section expresses the desirability of the proposed departure, taken in conjunction with the development principles and criteria set out through the statutory planning framework, as well as the degree to which this proposal may be considered within the context of broader public interest. It is our view that the initial investigation into the desirability of the proposal reveals no obvious negative impacts.

The proposed application is considered desirable as it is not in conflict with spatial development policies. Furthermore, the approval of the application will not have a negative impact on the character of the area as well as the surrounding neighbours. The proposed consent uses will optimise and utilise the existing structures on the property. The proposed sand mine will allow the land owner to incorporate mining activities within its primary rights which could contribute to the mix-use character of the surrounding area. Therefore, the proposed development can be considered desirable and consistent with the immediate surrounding character of the area.

The following key considerations are taken into account to determine the desirability of the proposed land use.

Elements for Consideration	Key Questions to Ask	Proposal (Desirability)
Economic impact	Positive or Negative impact on neighbourhood / settlement?	<ul style="list-style-type: none"> ▪ <i>Positive economic impact. For the benefit of the surrounding settlements.</i> ▪ <i>No impact on surrounding property owners or their rights.</i>
Social impact	Greater social justice, equity of access to opportunity	<ul style="list-style-type: none"> ▪ <i>The capital investment by the landowner into the mining sector provides significant downstream benefits to the surrounding community and the local construction industry. By establishing a reliable, localized source of raw materials, the development supports a variety of industrial and civil engineering activities.</i>
Scale of capital investment	> capital investment - > positive impact	<ul style="list-style-type: none"> ▪ <i>All capital investment will be from the developers. The additional uses will contribute to addition rates & taxes for George Municipality due to an increase in property value.</i>
Compatibility with surrounding land uses		<ul style="list-style-type: none"> ▪ <i>The proposal is compatible with the surrounding area</i> ▪ <i>Refer to Par.9 & 16</i>



Elements for Consideration	Key Questions to Ask	Proposal (Desirability)
Impact on external engineering services	How much must the developer contribute to municipal costs incurred?	<ul style="list-style-type: none"> ▪ <i>No impact on existing service infrastructure – Refer to Par.6</i>
Impact on safety, health & wellbeing of the surrounding community		<ul style="list-style-type: none"> ▪ <i>Refer to Par.17</i>
Impact on heritage		<ul style="list-style-type: none"> ▪ <i>No heritage impacts</i> ▪ <i>No heritage value</i>
Impact on the biophysical environment	Are there negative impacts? Are they adequately mitigated?	<ul style="list-style-type: none"> ▪ <i>No NEMA-listed activities were triggered.</i> ▪ <i>Outside any CBA areas.</i>
Traffic impacts, parking access, other transport considerations	Support for densification & functional public transport system?	<ul style="list-style-type: none"> ▪ <i>Access from the existing road network and access will be directly via the N2 – Refer Par.4.2</i>
Impact on quality of life (incl. views, sunlight, privacy, visual impact, character)		<ul style="list-style-type: none"> ▪ <i>The development maintains a substantial 60m vegetated buffer adjacent to the N2 National Road, which serves as a critical visual screen to protect the scenic integrity of the corridor. This generous setback ensures that the operational areas of the quarry remain largely obscured from public view, effectively mitigating the visual impact on passing motorists and preserving the rural aesthetic of the Garden Route</i> ▪ <i>Refer to Par 13.1 & Par 11</i>
Timing – need to densify or protect urban edges	The best option for the site at this point?	<ul style="list-style-type: none"> ▪ <i>The application has no effect on the urban edge as it falls without the urban edge.</i>
Cumulative impacts	Unacceptable cumulative impacts?	<ul style="list-style-type: none"> ▪ <i>The development will generate a positive cumulative impact by integrating local job creation with the strategic provision of construction materials. By localizing the supply chain, the project supports regional infrastructure growth and provides a sustainable economic stimulus to the surrounding rural community.</i>
Opportunity costs	Any unacceptable opportunity costs?	<ul style="list-style-type: none"> ▪ <i>Private investment.</i> ▪ <i>No municipal funding is required</i>
Alignment with SDF's		<ul style="list-style-type: none"> ▪ <i>Consistent with relevant SDFs - Refer to Par.13</i>



Note: LUPA (*Land Use Planning Act*) does not refer to a lack of desirability, nor does it require there to be a positive advantage (i.e. the absence of a positive advantage should not automatically lead to a decision to refuse).

From the table above, it is clear that the proposed development on The Remainder of Portion 3 of the Farm No 191 is desirable.

22. WESTERN CAPE LAND USE PLANNING ACT, 2014 (ACT 3 OF 2014)

The purpose of this provincial legislation is to consolidate legislation in the Province pertaining to provincial planning, regional planning and development, urban and rural development, regulation, support and monitoring of municipal planning and regulation of public places and municipal roads arising from subdivisions; to make provision for provincial spatial development frameworks; to provide for minimum standards for, and the efficient coordination of, spatial development frameworks; to provide for minimum norms and standards for effective municipal development management; to regulate provincial development management; to regulate the effect of land development on agriculture; to provide for land use planning principles; to repeal certain old-order laws, and to provide for matters incidental thereto.

Section 59 of this Act prescribes the Land Use Planning Principles that apply to all land development in the Province. These are summarised in the tables below. The tables below aim to summarise how the proposed development on The Remainder of Portion 3 of the Farm No 191 complies with these principles.

22.1. Spatial Justice

Criteria	Compliance	Planning Implication
Past spatial and other development imbalances must be redressed through improved access to and use of land.	Not applicable	This policy is not applicable to the application area.
Spatial development frameworks and policies at all spheres of government must address the inclusion of persons and areas that were previously excluded, with an emphasis on informal settlements, former homeland areas and areas characterised by widespread poverty and deprivation.	Not applicable	This policy is not applicable to the application area. Not a Spatial Development Framework or Policy.



Criteria	Compliance	Planning Implication
Spatial planning mechanisms, including land use schemes, must incorporate provisions that enable redress in access to land by disadvantaged communities and persons.	Not applicable	This policy is not applicable to the application area.
Land use management systems should include all areas of a municipality and specifically include provisions that are flexible and appropriate for the management of disadvantaged areas and informal settlements.	Not applicable	This policy is not applicable to the application area.
Land development procedures must include provisions that accommodate access to, and facilitation of, security of tenure and the incremental upgrading of informal areas.	Not applicable	The municipality should process this application within the prescribed guidelines of the Land Use Planning By-Law for George Municipality, 2023.
A competent authority contemplated in this Act or other relevant authority considering an application before it, may not be impeded or restricted in the exercise of its discretion solely on the ground that the value of land or property will be affected by the outcome of the application.	COMPLY	The competent decision-making authorities should process and decide upon this application, within the prescribed decision-making time frames.
The right of owners to develop land in accordance with current use rights should be recognised.	Not applicable	This policy is not applicable to the application area, as the proposal is not to implement the existing rights.

22.2. Spatial Sustainability

Criteria	Compliance	Planning Implication
Promote land development that is within the fiscal, institutional and administrative means of the Republic.	Comply	<ul style="list-style-type: none"> The proposal will not require any financial input from any government institution.
Ensure that special consideration is given to the	Comply	<ul style="list-style-type: none"> The proposed mining activity is strategically sited on a portion of the property that does not



Criteria	Compliance	Planning Implication
protection of prime and unique agricultural land.		<p>constitute prime agricultural land, characterized by limited soil capability for intensive crop production. By localizing the 5.3697 ha footprint within previously disturbed areas currently dominated by invasive alien vegetation, the development ensures that the high-potential forested and agricultural sections of the farm remain untouched.</p> <ul style="list-style-type: none"> ▪ Crucially, sand mining is a temporary and reversible land use; through a program of progressive rehabilitation, the site will be restored to a stable state post-extraction, ensuring no significant long-term loss of agricultural potential. Furthermore, the removal of water-intensive alien species will improve the property's overall ecological health and water security, ultimately supporting the long-term sustainability of the farm's remaining agricultural zone.
Uphold consistency of land use measures in accordance with environmental management instruments.	Comply	<ul style="list-style-type: none"> ▪ The proposal does not trigger any listed activities that require environmental authorisation in terms of the National Environmental Management Act (1998).
Promote and stimulate the effective and equitable functioning of land markets.	Comply	<ul style="list-style-type: none"> ▪ The proposal will not devalue any of the surrounding properties. ▪ The proposal is consistent with the mixed use character of the surrounding area. ▪ The proposed consent uses will not result in any speculation and undue price increases on agricultural land.
Consider all current and future costs to all parties for the provision of infrastructure and social services in land developments.	Comply	<ul style="list-style-type: none"> ▪ The proposal will not require any financial input from any government institution. ▪ The proposed development does not require the provision of infrastructure and social services.
Promote land development in locations that are sustainable and limit urban sprawl; and result in communities that are viable.	Comply	<ul style="list-style-type: none"> ▪ The application area is located in a rural area ($\pm 23\text{km}$ outside of George CBD). This development will not limit nor contribute to urban sprawl.
Result in communities that are viable.	Comply	<ul style="list-style-type: none"> ▪ The proposal will create new employment opportunities for the nearby rural communities.
Strive to ensure that the basic needs of all citizens are met in an affordable way.	Not Applicable	This principle is not applicable to the applicant or this development.



Criteria	Compliance	Planning Implication
The sustained protection of the environment should be ensured.	Comply	<ul style="list-style-type: none"> ▪ In line with all environmental policy documents and legislation. ▪ The proposed development is not impacting any sensitive environmental area or critical biodiversity area (CBA) ▪ The activities does not trigger the need for Environmental Authorisation.

22.3. Spatial Efficiency

Criteria	Compliance	Planning Implication
Land development optimises the use of existing resources and infrastructure.	Comply	<ul style="list-style-type: none"> ▪ The proposed consent use optimizes the property's natural resource potential by utilizing a specific, low-potential portion of the land for essential mineral extraction. This development allows for the diversification of the farm's economic base, providing a resource-dependent income stream that supports the ongoing maintenance and environmental stewardship of the broader property. By leveraging the site's unique geological assets, the operation functions as a supportive land use that strengthens the farm's financial resilience without compromising its long-term agricultural identity or rural character
Integrated cities and towns should be developed.	Not Applicable	This policy is applicable to township developments, new urban developments and development within the urban area.
Policy, administrative practice and legislation should promote speedy land development.	Not Applicable	The municipality should process this application within the prescribed time frames of the George Municipality By-law on Municipal Land Use Planning (2015).

22.4. Spatial Resilience

Criteria	Compliance	Planning Implication
Flexibility in spatial plans, policies and land use management systems are accommodated to ensure sustainable livelihoods in communities most likely to suffer the impacts of economic and environmental shocks	Comply	<ul style="list-style-type: none"> ▪ The proposal is in line with the various spatial plans and policies, as motivated in the report. ▪ The proposed application complies with the requirements of the George Municipality By-Law on Municipal Land Use Planning (2015).



22.5. Good Administration

Criteria	Compliance	Planning Implication
<p>All spheres of government ensure an integrated approach to land use and land development that is guided by the spatial planning and land use management systems as embodied in this Act.</p>	<p>Applicable to George Municipality</p>	<p>This principle has no direct bearing on the application; however, the George Municipality is obligated to consider the application fairly and within the timeframes provided in terms of the municipal planning bylaw.</p> <p>What is however important is that all decision making is aligned with sound policies based on nation, provincial and local development policies.</p>
<p>All government departments must provide their sector inputs and comply with any other prescribed requirements during the preparation or amendment of spatial development frameworks.</p>		
<p>The requirements of any law relating to land development and land use are met timeously.</p>		
<p>The preparation and amendment of spatial plans, policies, land use schemes as well as procedures for development applications, include transparent processes of public participation that afford all parties the opportunity to provide inputs on matters affecting them.</p>		
<p>Policies, legislation and procedures must be clearly set in order to inform and empower members of the public.</p>		

23. CONCLUSION

In light of this motivation, and the information contained within the foregoing report, it is clear that the application for:

- (i) A consent use for a "quarry" on Remainder of Portion 3 of the Farm Boven Lange Valley No 191, Division George, in terms of Section 15(2) (o) of the George Municipality By-Law on Municipal Land Use Planning (2023).



REMAINDER OF PORTION 3 OF THE FARM NO. 191: CONSENT USE & PERMANENT DEPARTURE

- (ii) A Permanent Departure to relax the lateral building lines on Remainder of Portion 3 of the Farm Boven Lange Valley No 191, Division George, from 20m to 12.7m to allow a site office in terms of Section 15(2)(b) of the George Municipality By-Law on Municipal Land Use Planning (2023).
- (iii) Application for a permission in terms of the Zoning Scheme, in terms of Section 15(2)(g) of the George Municipality By-Law on Municipal Land Use Planning (2023), to approve a Site Development Plan for the proposed sand Quarry.

Meets the criteria as set out in The Spatial Planning and Land Use Management Act (SPLUMA) and the George Land Use Planning Bylaw is desirable and it is therefore recommended that the application for the proposal be supported by the relevant authorities and approved by George Municipality.

M Vreken
Marika Vreken Urban and Environmental Planners
January 2026

ANNEXURE A:

Environmental Authorisation, 4 July 2023



MINISTER
FORESTRY, FISHERIES AND THE ENVIRONMENT
REPUBLIC OF SOUTH AFRICA

Reference: LSA 221285

APPEAL DECISION

APPEAL LODGED AGAINST THE DECISION OF THE DEPARTMENT OF MINERAL RESOURCES AND ENERGY TO GRANT AN ENVIRONMENTAL AUTHORISATION TO PVVK MANAGEMENT SERVICES CC, IN RESPECT OF A MINING RIGHT AND ASSOCIATED ACTIVITIES.

Paradise Ridge Conservancy	First Appellant
Wilderness and Lakes Environmental Action Forum	Second Appellant
PVVK Management Services CC	Applicant
Department of Mineral Resources and Energy	Competent Authority

Appeal: The appeals were submitted by Balvindra Walker on behalf of Paradise Ridge Conservancy (First Appellant) and Charles Scott on behalf of Wilderness and Lakes Environmental Action Forum (Second Appellant), against the decision of the Regional Manager: Mineral Regulation of the Department of Mineral Resources and Energy (the DMRE), Western Cape Regional Office, taken on 05 August 2022, to grant an environmental authorisation (EA) to PVVK Management Services CC (the Applicant) for listed activities

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pertaining to the proposed sand mining activities on the Remainder of Portion 03 of Farm 191; situated in the Magisterial District of George, Western Cape Province.

1. BACKGROUND AND APPEAL

- 1.1 On 04 July 2019, the Applicant lodged an EA application with the DMRE, for the listed activities pertaining to the proposed mining of sand at the abovementioned location. This application was lodged and processed in terms of the Environmental Impact Assessment Regulations, 2014, as amended (2014 EIA Regulations), promulgated under the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended (NEMA).
- 1.2 The Applicant commissioned Klipberg Consulting (Pty) Ltd, as an Independent Environmental Assessment Practitioner (EAP), to undertake a Scoping Report and Environmental Impact Assessment Report (EIR) (S&EIR) process for the abovementioned EA application.
- 1.3 The Applicant submitted the Scoping Report (SR) on 15 August 2019 as required in terms of regulation 21 (1) of the 2014 EIA Regulations, as amended. On 10 October 2019, the DMRE accepted the SR in terms of Regulation 22 (a) of the 2014 EIA Regulations, as amended. On 05 February 2020, the final Environmental Impact Assessment Report (EIR)/Environmental Management Programme (EMPr) prepared in respect of the EA application were submitted to the DMRE, for consideration and decision-making.
- 1.4 On 05 August 2022, the DMRE issued the EA to the Applicant under reference number: WC 30/5/1/2/2/10113 EM.
- 1.5 The Directorate: Appeals and Legal Review (Appeals Directorate) within the Department of Forestry, Fisheries and the Environment (the Department) received the following appeals against the aforesaid decision of the DMRE to approve the EA application:

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- 1.5.1 On 19 August 2022, from Balvindra Walter on behalf of Paradise Ridge Conservancy (*the first appellant*); and
- 1.5.2 On 22 August 2022, from Charles Scott on behalf of Wilderness and Lakes Environmental Action Forum (*the second appellant*).

- 1.6 The above appeals were lodged in terms of section 43(1) of NEMA, read with regulation 4 of the National Appeal Regulations, 2014 (2014 Appeal Regulations).

- 1.7 On 08 September 2022, the Applicant submitted their responding statement to the appeals.

- 1.8 On 14 September 2022, the DMRE submitted their comments on the first Appellant's appeal.

- 1.9 The first Appellant's grounds of appeal are broadly premised on the following:
 - 1.9.1 The proposed mining area is a "protected area" and a mine closure and rehabilitation plan were not included.
 - 1.9.2 No adherence to the need for sustainability.
 - 1.9.3 The existing sand mines on the erven are still productive.
 - 1.9.4 No fauna studies have been included.
 - 1.9.5 A traffic impact study has not been included.
 - 1.9.6 The Mine must become a member of the conservancy; and
 - 1.9.7 Further appeal points in PRC's objection.

- 1.10 The second Appellant's grounds of appeal are premised on the following:
 - 1.10.1 An objection was lodged against the proposed development, however no correspondence has been received;
 - 1.10.2 No notification of the Sand Mine has been approved;
 - 1.10.3 SANParks, Paradise Ridge Conservancy and WALEAF objected, and their objections were never considered.

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2. GROUNDS OF APPEAL, RESPONSES AND EVALUATION

Appeal by the first Appellant:

First ground of appeal: the proposed mining area is a "protected area".

2.1. The Appellant submits the following:

2.1.1. The proposed property's conservation designation in the Western Cape Biodiversity Spatial plan is "PROTECTED AREA".

2.1.2. In the document: "The right to mine in a 'protected area' in *South Africa: Mining and Environmental Justice Community Network of South Africa v Minister of Environmental Affairs*" (Clive Vinti School of Law, University of the Free State, Bloemfontein, South Africa) it states... "The court further held that in evaluating a request for such permission (to mine in a Protected Area), the Ministers must act as trustees of such protected environment and should assiduously consider the interests of local communities and the environmental principles referred to in s 2 of NEMA".

2.1.3. In granting the EA, the DMRE did not act in their capacity as a trustee of a protected environment.

2.1.4. A mine closure and rehabilitation plan does not form part of the EMPr. There must be closure design specifications which dictate the final landscaping shape, maximum and minimum slopes, post closure drainage facilities, maximum (or minimum) compaction criteria for in-situ soils, spread rate and minimum thickness of topsoil. The temporary stockpiling of topsoil is very important. It is critical that temporary topsoil berms are not too high or compacted which may deprive the soil of oxygen.

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Response by Applicant to the first ground of appeal:

- 2.2 The Applicant made the following general remarks before responding to substantive issues raised in the first ground of appeal:
- 2.2.1 The purpose of the appeal should be to raise grounds of appeal against the decision by the DMRE to grant an EA as applied for. It is not the opportunity for Appellants to repeat their objections which have already been dealt with.
- 2.2.2 The objections were recorded in all the reports that were submitted to the DMRE and the objections and the responses thereto were considered in the DMRE's decision. This is confirmed in the DMRE's EA, Annexure 1, Section 1.
- 2.2.3 It is clear that the Applicant gave all Interested & Affected Party (I&APs) (including the Appellant) ample opportunity and time to object and make submissions for consideration by the DMRE.
- 2.2.4 On 27 November 2019, the Applicant's representative embarked on a public awareness campaign after the completion of the scoping process (including public participation process) when the EIAR and EMPr were submitted to the duly registered I&APs. Twenty-two (22) persons responded to the invitation to object. In this regard, the following was recorded:
- Almost 50% of the new objectors were apparently members of the Appellant;
 - Consequently, almost 50% of the Appellant's members did not use the opportunity to object;
 - Although the dates for registration as I&APs and for submission of objections had transpired, the Applicant acknowledged the objections and incorporated them as well as its responses in Addendum 1 to the Final Consultation Report on the EIAR and EMPR to the CA on 28 February 2020;
 - The Competent Authority confirmed that it was also duly considered by them. Annexure 1 to the EIA, section 1(g).

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- 2.3 In response to the substantive issues raised under the first ground of appeal, the Applicant submits the following:
- 2.3.1 The Western Cape Biodiversity Spatial Plan (2017) is a conservation planning instrument. It was only discovered very late in the EIA process, on 13 January 2020, in a letter from Cape Nature, that the property is deemed to be a "Protected Area" in terms of the National Management: Protected Areas Act, Act 57 of 2003 (NEM: PAA). This is described in full in Addendum 2 of the Final Consultation Report.
- 2.3.2 The Wilderness National Lake Area is a very large area that extends from Sedgefield to The Wilderness and well inland. Numerous activities take place within this area including forestry sawmills, farming, fishing, furniture making, guest farms, holiday resorts, residential properties, commercial properties, municipal infrastructure, the N2 national road, secondary roads and also existing mining activities. Incidentally all the land that is owned by the members of the Appellant also fall within the area that is now deemed to be a "protected area."
- 2.3.3 The Applicant indicated in its letter dated 05 August 2022 that was addressed to all the I&APs simultaneously with the EA, that it intends to apply to both Ministers (the Minister of Forestry, Fisheries, and the Environmental and the Minister of Mineral Resources & Energy) in terms of Section 48 of the NEM:PAA for permission to conduct the proposed mining activities on the farm RE/3/191.
- 2.3.4 Regarding the Appellant's reference to *Mining and Environmental Justice Community Network of South Africa and Others v Minister of Environmental Affairs and Others 2019 (5) SA 231 (GP)*, the following are recorded:
- The Appellant makes a general statement, without providing a shred of evidence that the DMRE did not act as required.
 - The DMRE duly considered the evidence before it, including the submissions from the I&APs from the community in the area.

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- The Applicant declared that it would seek the permission of the Ministers as provided for in Section 48 of the NEM: PAA for permission to conduct the proposed mining activities on the farm RE/3/191.
- It is clear that the community that the Appellant refers to only includes landowners of upmarket rural residences, which is, incidentally, also located within the protected area referred to, but it is separated from the proposed mining area by the N2.
- The DMRE in the EA confirmed that "Comments and issues raised by all authorities and Interested and Affected Parties were taken into consideration and adequately addressed in final EIA/EMPr and conditions of approval for this Environmental Authorisation".
- The status of the Appellant and its members cannot be compared to that of the members of the Mabola Protected Environment Landowners Association.

2.3.5 No evidence exists of the DMRE's failure to act as a "trustee" of a protected environment as it should have. To the contrary, the DMRE duly applied its mind and considered the effect of the proposed project on the protected area as recorded in numerous specialist reports and acted as could be expected as a trustee in respect of protected areas as well as custodian of the country's mineral resources.

2.3.6 It would appear that the Appellant did not take note of the contents of the EIAR and EMPr or the conditions contained in the EA.

2.3.7 Figure 5 on Page 14 of the EIAR contains a detailed mining and rehabilitation plan indicating the phases of mining as well as the rehabilitation measures.

2.3.8 Figure 6 on Page 15 of the EIAR is a detailed closure plan indicating what must happen at closure.

2.3.9 Section 17 of the EIAR & EMPr describes the three closure and environmental objectives in detail.

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- 2.3.10 Section 43 of the MPRDA requires a closure certificate in terms of section 43 of the Act before it will be decommissioned by the DMRE.
- 2.3.11 Sections 19.7.1 to 19.7.6 of the EIAR and EMPR contain the rehabilitation plan to be divided into five phases, explained in detail. Importantly, section 19.7.6 details the final rehabilitation and closure.
- 2.3.12 The DMRE included the following conditions in the EA:
- The holder of the EA must ensure rehabilitation of disturbed areas.
 - Activities can be audited/inspected at any time without notice by the DMRE.
 - Non-compliance may lead to revoking of EA.
- 2.3.13 Further detailed specifications are included in the Rehabilitation Plan and Alien Control Plan in Appendix 2 (the Biodiversity Assessment).

Comments by the DMRE:

- 2.4 In response to this ground of appeal, the DMRE submits the following:
- 2.4.1 The property is listed as a "Protected Area" in the Western Cape Biodiversity Spatial Plan (WCBSP 2017) which is a conservation planning tool. The WCBSP does not grant or take away existing land use rights.
- 2.4.2 "Protected Environment" does not have the same status as a National Park or Nature Reserve where no mining or prospecting activities are allowed at all. This is described in Section 48 of the NEM: PAA:
- "48". Prospecting and mining activities in protected area:*
- (1) Despite other legislation, no person may conduct commercial prospecting, mining, exploration, production or related activities:*
- (a) in a special nature reserve, national park or nature reserve;*

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(b) in a protected environment without the written permission of the Minister and the Cabinet member responsible for minerals and energy affairs; or

(c) in a protected area referred to in section 9(b) or (d)."

2.4.3 This means that mining activities in a "Protected Environment" requires written permission from the Minister of Forestry, Fisheries, and the Environmental and the Minister of Mineral Resources & Energy in terms of Section 48(1)(b) of the NEM: PAA.

2.4.4 The environmental authorisation application process (including a possible appeal) should be finalised first, before both Ministers can consider an application to permit mining in a protected environment in terms of section 48 of NEM: PAA. If an EA is granted, it may be necessary to wait until Regulations and a Management Plan have been approved for the Wilderness Protected Environment before both Ministers could consider an application in terms of Section 48 of the NEM: PAA. Even if an EA in terms of the NEMA is granted, and permission in terms of Section 48 of the NEM: PAA is obtained, it will still be necessary to submit a land use application to the George Municipality and to comply with the relevant development application process.

2.4.5 The approval of the EA is one of many applications that would have to be approved before mining may commence on site.

2.4.6 The rehabilitation plan for the proposed sand mine is included in the specialist biodiversity assessment (see Appendix 2 p. 32) and is illustrated in Figures 5 and 6 in the EIA/EMPR on 14 - 16. The EA also contain specific conditions for closure and rehabilitation on pages 7 to 8.

EVALUATION:

2.5 The issue arising in this ground of appeal is procedural in nature, in particular, whether an EA may be granted to the Applicant due to the location of the area, namely, the Remainder

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of Portion 03 of Farm 191; situated in the Magisterial District of George, Western Cape Province (the area).

2.6 I pause to mention that it is apparent to me that the parties to this appeal have used the terms "protected area" and "protected environment", inter-changeably, thereby conflating these concepts. These are separate and distinct concepts. I therefore deem it appropriate to first record the relevant legislative provisions relating to "protected area" and "protected environment" in terms of the National Environmental Management Protected Areas Act, Act 57 of 2003 (NEMPAA).

2.7 Section 1 of the NEMPAA provides the following definitions:

2.7.1 Protected Area means any of the protected areas referred to in section 9.

2.7.2 Protected Environment means

(a) An area declared or regarded as having been declared in terms of section 28 as a protected environment

(b) An area which before or after the commencement of this Act was or is declared or designated in terms of provincial legislation for a purpose for which that area could in terms of section 28(2) be declared a protected environment, and includes an area declared in terms of section 28 (1) as part of an area referred to in paragraph (a) or (b) above.

2.7.3 Provincial Protected Area means a nature reserve or protected environment –

(a) Managed by a provincial organ of state, or

(b) Which falls under the jurisdiction of a province for any reason.

2.8 Section 9 of the NEMPAA provides as follows:

"The system of Protected Areas in South Africa consists of following kinds of protected areas:

(a) Special nature reserves, nature reserves (including wilderness areas) and 'protected environment'.

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- (b) World heritage sites.
- (c) ***
- (d) Specially protected forest areas, forest nature reserves and forest wilderness areas declared in terms of the National Forest Act, 1998 (Act 84 of 1998).
- (e) Mountain catchment areas declared in terms of the Mountain Catchment Areas Act, 1970 (Act 63 of 1970)."

2.9 Section 48 of NEM: PAA stipulates as follows:

48 (1). Despite other legislation, no person may conduct commercial prospecting or mining activities-

- a) In a special nature reserve or nature reserve*
- b) In a protected environment without permission of the Minister and the Cabinet member responsible for mineral and energy affairs, or*
- c) In a protected area referred to in section 9 (b) and (d).*

(2) The Minister, after consultation with the Cabinet member responsible for mineral and energy affairs, must review all mining activities which were lawfully conducted in areas indicated in subsection (1)(a), (b) and (c) immediately before this section took effect.

2.10 I am informed by the Department's database reflects the following for the area:

2.10.1 Protected Environment

Current Name: Wilderness National Lake Area

WMCM: National

Major Type: PA

Type: Protected Environment

Date Declared: 5/2/1986, 2:00 AM

Legal Status: Designated

GIS Area (Ha): 14,284.63.

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2.10.2 The area also falls within a Biosphere Reserve

Current Name: Garden Route Biosphere Reserve

WMCM: International

Major Type: CA

Type: Biosphere Reserve

Date Declared: 6/15/2017, 2:00 AM

Legal Status: Inscribed

GIS Area (Ha): 698,201.49

2.11 Considering the above, the area falls partially within the Wilderness National Reserve and Partially within the Garden Route Biosphere Reserve, the area is not a "protected area" in terms of section 9(b) and (d) of the NEMPAA and it is not a protected area that falls within the purview of section 48(1)(c) of the NEMPAA, wherein any form of commercial mining is absolutely prohibited.

2.12 I must point out that this does not mean that the area is not environmentally significant and or that environmental consideration are insignificant considerations. I take heed that section 48(1)(b) of NEM: PAA allows for commercial prospecting or mining operations in a **protected environment** on condition that the permission of the Minister responsible for environmental affairs and the Minister responsible for mineral and energy affairs is obtained. On this aspect, paragraph 2 on page 6 of the EA, contains the following site-specific condition:

"No mining activities may commence without the concurrence of both Ministers of the Department of Mineral Resources and Energy and the Department of Forestry Fisheries and the Environment in terms of the provisions of section 48 of National Environmental Management: Protected Areas Act, (Act 57 of 2003) (NEMPA Act) and section 48 of the Mineral and Petroleum Resources Development Act (28 of 2002) (MPRDA).

APPEAL LODGED AGAINST THE DECISION OF THE DEPARTMENT OF MINERAL RESOURCES AND ENERGY TO GRANT AN ENVIRONMENTAL AUTHORISATION TO PVVK MANAGEMENT SERVICES CC, IN RESPECT OF A MINING RIGHT AND ASSOCIATED ACTIVITIES

- 2.13 It is therefore evident that the DMRE granted the EA on condition that the permission of both Ministers are sought in terms of section 48(1) (b) of NEMPAA. In my view, the DMRE correctly applied the law on this issue.
- 2.14 In my view, the nub of this ground of appeal is premised on the argument that the DMRE should not have granted the EA simply because the area is located in a “protected area.” Considering that this area is not a protected environment and not a protected area, there is no ban on mining in this area. The DMRE therefore correctly considered the application under the provisions of section 48(1)(b) of the NEMPAA.
- 2.15 My consideration of this aspect of this ground of appeal is simply premised on whether the DMRE could consider an application for environmental authorisation for a commercial mining activity on the protected environment. My decision on this aspect does not have any bearing on my consideration of any application that the Applicant may submit for my permission, in my capacity as the Minister responsible for environmental affairs, in terms of section 48(1)(b) of the NEMPAA, to undertake the proposed commercial mining in the relevant provincial protected area to which this EA applies. I will consider such an application at the appropriate time.
- 2.16 The remaining grounds of appeal are:
- 2.16.1 The mine closure and rehabilitation plan were not included.
 - 2.16.2 No adherence to the need for sustainability.
 - 2.16.3 The existing sand mines on the erven are still productive.
 - 2.16.4 No fauna studies have been included.
 - 2.16.5 A traffic impact study has not been included.
 - 2.16.6 The Mine must become a member of the conservancy; and
 - 2.16.7 Further appeal points in PRC’s objection.

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2.16.8 An objection was lodged against the proposed development, however no correspondence has been received;

2.16.9 No notification of the Sand Mine has been approved;

2.16.10 SANParks, Paradise Ridge Conservancy and WALEAF objected, and their objections were never considered.

2.17 I have decided not to make a decision on the remaining grounds of appeal as these are matters that fall within the purview of my consideration in an application in terms of section 48(1)(b) of NEMPAA. To make a decision on these grounds of appeal would require me to pre-determine issues that I will need to consider in a potential section 48(1)(b) application from the Applicant. I am satisfied that the Appellant's will not be prejudiced by my decision not to make determination on these grounds of appeal, because the Applicant's EA is in any case conditional on my approval should an application be brought in terms of section 48(1)(b) of NEMPAA.

2.18 The Applicant may not commence with the proposed mining activities until it has complied with the condition in the EA, the provisions of section 48(1)(b) of NEMPAA and section 48 of the Mineral and Petroleum Resources Development Act (28 of 2002) (MPRDA), namely that it is to first obtain the permission of the Minister responsible for environmental affairs and the Minister responsible for mineral and energy affairs before it commences with the mining activity.

3 DECISION

3.1 In reaching my decision on this appeal, I have taken the following into consideration:

3.1.1 The appeal lodged by the first Appellant on 19 August 2022;

3.1.2 The appeal submitted by the second Appellant on 22 August 2022;

APPEAL LODGED AGAINST THE DECISION OF THE DEPARTMENT OF MINERAL RESOURCES AND ENERGY TO GRANT AN ENVIRONMENTAL AUTHORISATION TO PVVK MANAGEMENT SERVICES CC, IN RESPECT OF A MINING RIGHT AND ASSOCIATED ACTIVITIES

- 3.1.3 The responding statements submitted by the Applicant on 08 September 2022;
- 3.1.4 Comments submitted by the DMRE on 14 September 2022;
- 3.1.5 The information contained in the project file (WC30/5/1/3/3/2/1/10113 EM) provided by the DMRE, with specific reference to the Record of Decision for the evaluation and processing of the EA for mining right signed on 05 August 2022, the granted EA signed on 05 August 2022. A copy of the complete project file was requested from the DMRE, however, the DMRE only send through copies of the aforesaid documents.
- 3.2 In terms of section 43(6) of NEMA, I have the authority, after considering the appeal, to confirm, set aside or vary the decision, provision, condition or directive or to make any other appropriate decision.
- 3.3 Having duly considered the abovementioned information, in terms of section 43(6) of NEMA, I have decided to dismiss the appeal regarding the DMRE's consideration of the EA application and not to make a decision on the remaining grounds of appeal.
- 3.4 I re-iterate, that the partial dismissal of this appeal does not mean I am approving mining within a protected environment, and even though the Applicant followed all the relevant requirements in terms of the 2014 EIA Regulations, I will consider all the relevant considerations when approached by the Applicant to seek permission to conduct mining activities in terms of section 48 (1) (b) of NEM: PAA.
- 3.5 In arriving at my decision on the appeals, I have not responded to every statement set out in the appeals and/or responses thereto, and where a particular statement is not directly addressed the absence of any response thereto should not be interpreted to mean that I agree with or abide by the statement made.

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3.6 Should any party be dissatisfied with any aspect of my decision, they may apply to a competent court to have this decision judicially reviewed. Judicial review proceedings must be instituted within 180 days of notification hereof, in accordance with the provisions of section 7 of the Promotion of Administrative Justice Act, 2000 (Act No.3 of 2000) (PAJA).



MS B D CREECY, MP

MINISTER OF FORESTRY, FISHERIES AND THE ENVIRONMENT

DATE: 6/7/2023



mineral resources & energy

Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

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Sub-Directorate: Mine Environmental Management

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ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (NEMA) AS AMENDED, AND THE ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REGULATIONS, 2014 AS AMENDED FOR A MINING RIGHT APPLICATION IN RESPECT OF SAND MINING ACTIVITIES ON REMAINDER OF PORTION 3 OF FARM 191, MAGISTERIAL DISTRICT OF GEORGE: WESTERN CAPE REGION

With reference to the above-mentioned application, please be advised that the department has decided to **grant** environmental authorisation in terms of the National Environmental Management Act (Act 107 of 1998). The environmental authorisation and reasons for the decision are attached herewith.

In terms of regulation 4(2) of the Environmental Impact Assessment Regulations of 2014, you are instructed to notify all registered interested and affected parties, in writing within 14 (Fourteen) calendar days, from the date of the department's decision in respect of your application and the relevant provisions regarding the lodgement of appeal must be provided for in terms of the National Appeal Regulations of 2014.

Should you wish to appeal any aspect of the decision, you must **submit the appeal to the Minister of Forestry, Fisheries and the Environment and a copy of such appeal to the Department of Mineral Resources & Energy (Western Cape Regional Office)**, within 20 days from the date of notification, and such appeal must be lodged as prescribed in by Chapter 2 of the National Appeal Regulations of 2014, by means of the methods as prescribed below:

Appeal to the Department of Forestry, Fisheries and the Environment

Attention : Directorate Appeals and Legal Review
Email : appeals@dfre.gov.za
By post : Private Bag X 447, PRETORIA, 0001
By hand : Environmental House, Corner Steve Biko and
Soutpansberg Street, Arcadia, Pretoria, 0083

Please provide a copy of the lodged appeal to the Department of Mineral Resources & Energy

Attention : Regional Manager: Western Cape Region
By facsimile : (021) 427 1046
E-mail : pieter.swart@dmre.gov.za
By post : Private Bag X 09, Roggebaai, 8012
By hand : 15th floor, The Box, Cnr of Riebeeck and Lower Burg Streets,
Cape Town, 8001

Should you decide to appeal, you must comply with the National Appeal Regulation of 2014 in relation to notification of all registered interested and affected, and a copy of the official appeal form can be obtained from the Department of Environmental Affairs.

Kind Regards

.....
REGIONAL MANAGER: MINERAL REGULATION
WESTERN CAPE REGIONAL OFFICE
DATE: 



mineral resources & energy

Department:
Mineral Resources and Energy
REPUBLIC OF SOUTH AFRICA

Private Bag X 09, Roggebaai, 8012, Tel: 021 427 1000, Fax: 021 427 1046
The Box, 15th floor, Cnr of Riebeeck and Lower Burg Street, Cape Town,
8001

ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT 107 OF 1998) AS AMENDED ("NEMA") AND THE 2014 EIA REGULATIONS AS AMENDED FOR SAND MINING ACTIVITIES

Reference number:	WC 30/5/1/2/2/10113 MR
Last amended:	First issue
Holder of authorisation:	PVVK Management Services CC
Location of activities:	Remainder of Portion 3 of Farm 191, Magisterial District of George, Western Cape

DECISION

ACRONYMS

BAR:	Basic Assessment Report
DEPARTMENT:	Department of Mineral Resources & Energy
ECO:	Environmental Control Officer
EA:	Environmental Authorisation
EIA:	Environmental Impact Assessment
EIA REGULATIONS:	EIA Regulations, 2014
EMPr:	Environmental Management Programme
HWC:	Heritage Western Cape
I&AP:	Interested and Affected Parties
MPRDA:	Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002), as amended
NEMA:	National Environmental Management Act, 1998 (Act 107 of 1998), as amended
NEMWA:	National Environmental Management: Waste Act, 2008 (Act 59 of 2008), as amended
SAHRA:	South African Heritage Resources Agency

The Department is satisfied, based on information available to it and subject to compliance with the conditions of this environmental authorisation, that the applicant should be authorised to undertake **NEMA EIA** listed activities specified below. Details regarding the basis on which the department reached this granting decision are set out in **Annexure "1"** and **"2"** of this environmental authorisation.

ACTIVITIES APPLIED FOR

By virtue of the powers conferred on it by NEMA, the Department of Mineral Resources hereby **Grants** an Environmental Authorisation (EA) to **PVVK Management Services CC** with the following contact details –

PVVK Management Services CC
P.O. Box 272
Moorreesburg
7310

Attention: Lizel Visser
Tel no: 021 971 1401
E-mail: waldene@tiptransresources.co.za

to undertake the following activities listed in the NEMA EIA Regulations:

Listed Activities Authorised:	Activity and/or project description
<p>Activity 27 of Government notice No. R 985 as amended by GN 327 of April 2017</p> <p><i>The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation.</i></p>	<p>The proposed mining area is over an area of 5.3697ha containing indigenous and alien vegetation.</p>
<p>Activity 28 of Government notice No. R 985 as amended by GN 327 of April 2017</p> <p><i>Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or afforestation, on or after 01 April 1998 and where such development:</i></p> <p><i>(ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare.</i></p>	<p>The proposed mining area is currently zoned as Agricultural Zone I and is located 2km east of the residential area Kleinkrantz. The proposed size of the mine will be 5.3697ha</p>
<p>Activity 17 of Government notice No. R 984 as amended by GN 325 of April 2017</p> <p><i>Any activity including the operation of that activity which requires a mining right as contemplated in section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including—</i></p> <p><i>(a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource; or</i></p>	<p>The proposed development involves an application for mining right for sand in an area of 5.3697ha.</p>



<p><i>(b) The primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing</i></p> <p><i>but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies.</i></p>	
<p>Activity 4 of Government notice No. R 985 as amended by GN 324 of April 2017</p> <p><i>The development of a road wider than 4 metres with a reserve less than 13.5 m.</i></p> <p><i>i. Western Cape</i></p> <p><i>ii. Areas outside urban areas:</i></p> <p><i>(aa) Areas containing indigenous vegetation.</i></p>	<p>The existing access road will be improved to accommodate trucks. It's referred to as access point and road #47 in the EIA/EMPR.</p>
<p>Activity 18 of Government notice No. R 985 as amended by GN 324 of April 2017</p> <p><i>The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre.</i></p> <p><i>i. Western Cape</i></p> <p><i>ii. Areas outside urban areas:</i></p> <p><i>(aa) Areas containing indigenous vegetation.</i></p>	<p>The existing access road will be improved to accommodate trucks. It's referred to as access point and road #47 in the EIA/EMPR.</p> <p>sea</p>

Detailed description of the activity are as follows:

The holder is hereby authorised to undertake sand mining activities including the above listed activities as it relates to the development as follows:

- The mining activities will entail the excavation of sand. The extent of the mining right area is 5.3697ha.
- Site infrastructure will consist of a site office (two containers) and a weighbridge. One container will be a store and the other will be an office/control room. Solar power will be used.
- Mining will be divided into five phases. Concurrent mining and rehabilitation are planned with no more than one mining phase being open at a time.
- Overburden clearing and stockpiling of topsoil will be done using a bulldozer or front-end loader.
- The top 500mm of topsoil will be removed and stockpiled along the edges of the current mining phase.
- Excavated sand will go through a mobile screening plant to remove oversize material, roots and branches.
- Sand that is ready for collection by trucks will be stored in the active mining phase.
- A visual berm will be established on the southern boundary of the mining area to reduce the visual impact from the N2 National Road.



- Search and rescue for indigenous plants and Protected Tree Species under the National Forests Act, 1998 (Act No. 84 of 1998) for each mining phase will be conducted before sand mining starts on that phase.
- Progressive removal of alien vegetation will be conducted on the site as sand mining progresses.
- Clearance of all remaining alien trees in the buffer areas.
- Profiling of slopes and the mining floor using overburden and oversize material recovered from the screening plant.
- When mining has been completed, the site office, weighbridge and earth moving equipment will be removed.
- Mining will be done up to a depth of 55m above mean sea level.
- Post mining rehabilitation will be towards restoration of the Thicket/Fynbos mosaic of the local area.

Site description and location:

The activities will be conducted on Remainder of Portion 3 of Farm 191, Magisterial District of George, Western Cape at the following co-ordinates defining the nett mining area:

Points M1 – M6 representing the five mining phases	Latitude	Longitude
M1	-33.995091	22.677685
M2	-33.995394	22.678927
M3	-33.996217	22.678833
M4	-33.997170	22.679279
M5	-33.998672	22.679108
M6	-33.997860	22.677086

The Surveyor General Code for Remainder of Portion 3 of Farm 191 is: C0270000000019100003.

The granting of this EA is subject to the conditions set out below (site specific) and in **Annexure 2** (departmental standard conditions). The Environmental Management Programme (EMPr) attached as part of the reports for the above development submitted as part of the application for an EA complies with section 24N of NEMA, Appendix 4 of the EIA Regulations, 2014 as amended and is hereby approved and must be adhered to throughout the life cycle of the operation.

ENVIRONMENTAL AUTHORISATION SITE SPECIFIC CONDITIONS

1. Mining activities must be conducted in accordance with the approved Environmental Management Programme and the approved layout plan.
2. No mining activities may commence without the concurrence of both Ministers of the Department of Mineral Resources & Energy and the Department of Forestry, Fisheries and Environment in terms of the provisions of Section 48 of the National Environmental Management: Protected Areas Act (57 of 2003) (NEMPA Act) and Section 48 of the Mineral and Petroleum Resources Development Act (28 of 2002) (MPRDA).



3. No mining activities may commence without all other statutory authorisations being in place.
4. Visible semi-permanent markers must be placed on the mining boundary before mining activities commences and must be kept for the duration of mining. Mining activities must strictly be conducted within the demarcated area.
5. A complaints register must be kept on site and the content of it must be incorporated into Environmental Audit Report.
6. Prior to commencement of mining and clearing activities in each phase, the area is to undergo an indigenous plant rescue survey together with the ECO. Any plants that are deemed worth of rescuing are to be transplanted into the designated nursery area. A register of each plant that was transplanted and rescued is to be maintained. Permits for Protected Tree Species under the National Forests Act, 1998 (Act No. 84 of 1998) must be obtained before any of these are transplanted into the buffer zones or rehabilitation areas.
7. Mining must be confined to one phase at a time.
8. The mining area must be completely fenced off from the public during mining activities and access to the site must be restricted to the holder and its employees.
9. Demarcate and fence off the N2 buffer zone and the 9m buffers on either side.
10. Topsoil to a depth of 500mm must be removed and must be stored within the approved mining area. The management of topsoil must be done as per the approved EMPr and this EA.
11. The stockpiled topsoil must be protected from and/ or against losses by water and wind erosion. Driving over topsoil stockpile is prohibited.
12. A visual berm must be established on the southern boundary of the mining area and vegetated to reduce and mitigate the visual impact the sand mine has on the N2 National Road. The berm must always be kept free of alien invasive vegetation.
13. Mining activities must be conducted concurrent with rehabilitation and measures such as mulching and/or immediate cover with indigenous vegetation must be taken to make sure that the rehabilitated surface is protected from forces of erosion.
14. Operating hours on the site are restricted to weekdays from 08:00 till 17:00 and on Saturdays from 08:00 till 13:00.
15. After mining in each phase is complete, the slopes at the edges of the phase must be shaped and sloped to ensure that they are not steeper than 1:2.5.
16. No depressions should be left in the mining floor. A surface slope (even if minimal) must be maintained across the quarry floor towards the south.



17. Access to the site is approved for the current access road to the property. This access point is known as access #47. Any other access point would require the EA to be amended.
18. Sand leaving the site must be covered with tarpaulin cloth during transportation to prevent sand from being blown away by wind and causing pollution nuisance to other road users and the general public.
19. Alien vegetation must be cleared on an ongoing basis during mining activities and after rehabilitation of each block.
20. If any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.
21. Dust monitoring must be done via dust buckets that are placed at various points across the site as well as at sensitive receptor points and should take into account the prevailing wind conditions on site.
22. The holder must formally join the Southern Cape Fire Protection Association and the holder must apply to join the Paradise Ridge Conservancy.
23. Dust suppression measures must be implemented during mining activities and this may include spraying the mining area and access road with water and/or an environmentally friendly dust-allaying agent.

ANNEXURE 1: REASONS FOR THE DECISION

1. Key factors considered in making the decision

All the information presented to the Department was taken into account during the Department's consideration of the application. A summary of the issues which, in the Department's view, were of the most significance is set out below:

- a) The information contained in the application form received by the department on 4 July 2019.
- b) The information contained in the EIA and EMPR received by this department on 5 February 2020.
- c) The objectives and requirements of the applicable and relevant legislation, policies and guidelines and the NEMA EIA Regulations.
- d) The environmental impacts associated with the proposed activities outlined in the EIA and EMPR will be addressed through the implementation of the proposed mitigation measures outlined in the EMPR compiled by Klipberg Consulting (Pty) Ltd.
- e) Public Participation Process Report (PPP) as enclosed within the EIA & EMPR. The Public Participation Process (PPP) that was undertaken by the applicant has satisfied the minimum requirements prescribed in the



EIA Regulations R982 of 2014 as amended by (GN 326) for public involvement and the PPP results shows that the concerns raised by the I&APs and the Authorities were addressed by the Applicant in the EIA and EMPR.

- f) Comments received on the EIA/EMPr from the Principal Inspector of Mines, George Municipality, Breede-Gouritz Catchment Management Agency, South African National Parks, Department of Agriculture Forestry and Fisheries, Department of Environmental Affairs and Development Planning and Cape Nature.
- g) Comments received from interested and affected parties as well as the "new" interested & affected parties who submitted comments in response to a campaign initiated by local residents during the final consultation process which concluded on 23 January 2020.
- h) Biodiversity Assessment attached to the EIA/EMPR as Appendix 2.
- i) Heritage Impact Assessment attached to the EIA/EMPR as Appendix 3a.
- j) Visual Impact Assessment attached to the EIA/EMPR as Appendix 3b.
- k) Specialist Planning Report attached to the EIA/EMPR as Appendix 4.
- l) The Comments from Mine Health and Safety were in support of the proposed project;
- m) The Applicant has complied with Section 24P of the National Environmental Management Act, 1998 (Act 107 of 1998) and provided the financial provision for the management of environmental impacts.

3. Findings

After consideration of the information and factors listed above, the department made the following findings –

- a) The potential impacts on the proposed mining were clearly investigated and mitigation measures were outlined.
- b) The need and desirability of the project was clearly addressed.
- c) The proposed mining area lies immediately south of the Garden Route National Park. The site, as with the rest of the Garden Route, falls into the newly proclaimed Garden Route Biosphere Reserve. Elements of the thicket and fynbos variant are present in remnant pockets along the fence line with SANParks (GRNP) and on the north eastern boundary. Isolated indigenous trees occur within the plantation and woodlot area. The rest of the property consists of mature stands of pine and black wattle.
- d) Public Participation Process complied with Chapter 6 of the 2014 EIA Regulations R.982 as amended by (GN 326). The PPP included, *inter-alia*, the following:
 - A newspaper advertisement was placed in the local newspaper George Herald on 16 May 2019;



- A notice board was placed at the site entrance for the proposed mining area for the duration of the consultation process;
 - The notice of the availability of the EIA Report and EMPr was e-mailed to the Authorities and to the registered Interested and Affected Parties on 25 November 2019.
 - The hard copies of the EIAR & EMPr were hand delivered to the DEA&DP and posted to the George Municipality, Cape Nature, Department of Agriculture, SANRAL, Breede-Gouritz Catchment Management Agency, SanParks and DAFF – Forestry Western Cape via Speed Service Couriers (Post Office) on 27 November 2019.
 - Hard copies of the EIAR & EMPr were delivered to the George and the Sedgefield Public Libraries on 2 December 2019.
 - The landowner (Pieter Visser Trust) provided written consent for the application and the proposed activities on 26 April 2019.
 - Proof of consultation and comments received from the Interested and Affected Parties are included in the EIA/EMPR;
 - Comments and issues raised by all authorities and interested & affected parties were taken into consideration and adequately addressed in final the EIA/EMPR and conditions of approval for this Environmental Authorisation.
- e) Biodiversity Assessment concluded that the long-term conservation outcome proposed with this mine for rehabilitation and joining the local conservancy to ensure this outcome is realized, will ensure that the long-term cumulative impact of this mine contributes to the long-term conservation planning and outcomes for the area. The short-term disturbance through mining does not result in any long-term opportunity costs to conservation. The specialist proposed the following mitigation measures:
- (i) The proposed end use rehabilitation is to restore the natural dune thicket and fynbos mosaic vegetation of the area.
 - (ii) Fence these buffer areas off so that there is no possible encroachment from the mining area into the buffer zones and to ensure that these areas have no change in connectivity with the neighbouring properties.
 - (iii) N2 access should be restricted to the current access point no.47. The proposed alternative access point no. 48 will result in an unacceptable impact on the natural vegetation through the required earthworks and changes to the natural topography. The bank that would need to be removed to create a new N2 access interchange, currently supports indigenous vegetation and forms an important part of the proposed buffer along the N2 where the alien vegetation is to be removed and indigenous rehabilitation is to commence. This 60m buffer zone is an important corridor for connectivity along the N2 and forms part of the visual buffer recommended.
 - (iv) Before mining commences in a phase all protected trees should be identified and the necessary permits should be obtained to transplant it to either the buffer areas or previously rehabilitated mining phases.

- (v) Before mining commences all indigenous seedlings and saplings must be transplanted into the N2 buffer zone. A rehabilitation specialist must assist in training, identifying and where the seedlings and saplings must be transplanted to. In principle thicket species should be planted in clusters to simulate the natural growth pattern and ecological processes in the area. Fynbos species to be planted in the clear patches between the forest/thicket clusters.
 - (vi) Alien management will commence in year 1 and will continue for the life of the property.

- f) In the response to the Notification of Intent to Develop (NID), Heritage Western Cape indicated that a Heritage Impact Assessment (HIA) must be submitted, with special reference to visual impacts of the proposed development. A final HIA to Heritage Western Cape on 19 December 2019 and no further comments were received from Heritage Western Cape. The HIA recommended that the project be allowed to proceed with the western access point being preferred over the eastern one. The following conditions should be incorporated into the environmental authorisation:
 - (i) A fossil chance finds procedure must be included in the EMPr.
 - (ii) It must be ensured that the berm is not revealed by alien vegetation clearing until such time as it has been vegetated.
 - (iii) To avoid drawing attention, the entrance gate should be left as it is currently.
 - (iv) If any archaeological material or human burials are uncovered during the course of development, then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

- g) The Visual Assessment was conducted in response to the Notification of Intent to Develop (NID). Heritage Western Cape indicated that a Heritage Impact Assessment (HIA) must be submitted, with special reference to visual impacts of the proposed development. The Visual Assessment report covers the visual assessment, which will in turn be incorporated into the HIA. Visual Assessment concluded with the following:
 - (i) No major features of visual or scenic significance on the site will be lost during the operation of the sand quarry, provided that the buffers from the N2 in the south and on the site boundaries are observed.
 - (ii) The cumulative visual impact significance could be medium-high before mitigation because of the sporadic distribution of sand mines in the area. The cumulative visual impact could, however, be reduced to medium with the implementation of the visual buffers, and low after rehabilitation.
 - (iii) Provided that the visual mitigations are implemented, along with the mitigations recommended in other specialist studies, the sand mine, as proposed, would not constitute a fatal flaw in visual terms and could be approved.



- h) The Specialist Planning Report is of the opinion that the proposed development will achieve a sensitive balance between the natural environment, the built environment, and the social economic environment, that is imperative to ensure sustainable development. The following reasons are highlighted:
- (i) It's within the prescribed building lines on existing disturbed areas.
 - (ii) It's consistent with the character of the area.
 - (iii) It's consistent with the various policy guidelines of this area.
 - (iv) It's consistent with the George Integrated Development Plan.
 - (v) The Wilderness, Lakes, Hoekwil Local Spatial Development Framework (WLHLSDF) specifically focusses on maintaining the unique character of the area on a smaller scale focusing on key guidelines and strategies to achieve the desired spatial outcome for this area. It is clear that agriculture properties are advised as far as possible to adhere to the primary land use rights and ancillary uses in order to maintain the unique characteristics. The WLHSDf states that sand mines can be accommodated in the rural areas, if it can sensibly accommodate nuisance and space extensive agricultural enterprises and ancillary on-farm activities. It is therefore the considered opinion that the proposed sand quarry on Portion 3 of Farm No 191 is consistent with the WLHSDf.
- i) The findings of the specialist studies have informed the compilation of the EIR/EMPR and their recommendations have been included as mitigation measures in the EMPR and conditions of approval for the Environmental Authorisation.

ANNEXURE 2: DEPARTMENTAL STANDARD CONDITIONS

1 SCOPE OF AUTHORISATION

- 1.1 The holder of the EA must be responsible for ensuring compliance with the conditions contained in the EA. This includes any person acting on the holder's behalf, including but not limited to an agent, servant, contractor, subcontractor, employee, consultant or any person rendering a service to the holder of EA.
- 1.2 Any changes to, or deviation from the project description set out in this EA must be approved in writing by this department before such changes or deviation may be affected. In assessing whether to grant such approval or not, the department may request such information as is deemed necessary to evaluate the significance and impacts of such changes or deviation and it may be necessary for the holder of the EA to apply for further authorisation in terms of the EIA Regulations as amended.
- 1.3 The activities, which are authorised, must only be carried out at the property indicated in the EA and the approved EMPr.
- 1.4 When any of the holders of the EA contact details change including name of the responsible person, physical or postal address or telephonic details, the holder of the EA must notify the department as soon as the new details become known to the holder of the EA.



- 1.5 The EA does not negate the responsibility of the holder to comply with any other statutory requirements that may be applicable to the undertaking of such activities.
- 1.6 The holder of EA must ensure that all areas where the authorised activities occur have controlled access to ensure safety of people and animals.

2 APPEAL OF AUTHORISATION

- 2.1 The holder of the EA must in writing, within 14 (fourteen) calendar days from the date of this decision and in accordance with EIA Regulation 4(2) do the following:
 - 2.2 Notify all registered I&APs of –
 - 2.2.1 The outcome of the application;
 - 2.2.2 The date of the decision;
 - 2.2.3 The date of issue of the decision and;
 - 2.2.4 The reasons for the decision as included in Annexure 1 and departmental standard conditions in Annexure 2.
 - 2.3 Draw the attention of all registered I&APs to the fact that an appeal may be lodged against the decision in terms of the National Appeals Regulations,
 - 2.4 Draw the attention of all registered I&APs to the manner in which they may access the decision.
 - 2.5 Provide the registered I&APs with:
 - 2.5.1 Name of the holder (entity) of this EA;
 - 2.5.2 Name of the responsible person for this EA;
 - 2.5.3 Postal address of the holder;
 - 2.5.4 Telephonic and fax details of the holder and
 - 2.5.5 E-mail address of the holder if any.

3 COMMENCEMENT OF THE ACTIVITIES

- 3.1 In order to ensure safety, all employees must be given the necessary personnel protective equipment (PPE) and any employee without PPE must not be allowed on site.
- 3.2 This EA must be provided to the site operator and the requirements thereof must be made fully known to him or her.
- 3.3 Hauling routes for mining vehicles and machinery must be clearly marked and appropriate signaling must be posted to that effect. Furthermore, movement of vehicles and machinery must be restricted to the approved mining area.
- 3.4 Appropriate notification sign must be erected at the mining site, warning the public (residents, visitors etc.) about the hazard around the mining area and presence of mining vehicles and machinery.



- 3.5 Vegetation clearance must be limited to the actual mining footprint in accordance to the approved layout plan, and mitigation measures must be implemented to reduce the risk of erosion and alien species invasion.
- 3.6 Topsoil stripped before mining must be protected from erosion, contamination and/or pollution and stockpiling of topsoil must not take place in the drainage lines or areas where it will impede water runoff.
- 3.7 If any soil contamination is noted at any phase of the proposed activities, the contaminated soil must be removed to a licensed waste disposal facility designed for such waste and the site must be rehabilitated to the satisfaction of the department and Department of Water and Sanitation. The opportunity for the onsite remediation and re-use of contaminated soil must be investigated prior to the disposal and this department must be informed in this regard.
- 3.8 An integrated waste management approach that is based on waste minimization (waste management hierarchy) must be implemented and must incorporate avoidance, reduction, recycling, treat, reuse and disposal where appropriate. Ensure that no refuse generated in the mining area is placed, buried, dumped or deposited on the adjacent properties or public places and open space.
- 3.9 Uncontaminated storm water must be prevented from coming into contact with the waste and must be diverted away from the storage site and mining area.
- 3.10 The waste generated during mining activities must be stored in animal proof containers, and must be removed from site and disposed of at a registered disposal facility. Proof of disposal at a registered disposal facility must be kept and produced to any official of this department on request.
- 3.11 In terms of sections 28 and 30 of NEMA, any costs incurred to remedy environmental damage must be borne by the person responsible for the damage. It is therefore imperative that the holder of the EA reads through and understand the legislative requirements pertaining to the project. It is the holder of EA responsibility to take reasonable measures which include informing and educating contractors and employees about environmental risks of their work and training them to operate in an environmentally acceptable manner.
- 3.12 Vehicles and machineries must be serviced and maintained in the manner whereby excessive smokes and noise production is reduced to acceptable levels, and to prevent oil leaks. Servicing of machinery and vehicles must not take place on site.
- 3.13 Residents (if any) on the property and surrounding areas must be informed of any unusual noise activities in the mining area.
- 3.14 Dust suppression measures must be implemented on all exposed surface and access road to minimize and control airborne dust.



3.15 The protection of all historical and pre-historical cultural resources must remain on site and no mining activities are allowed within 100 diameters from those resources. Should any heritage remains be exposed during operation or any actions on the site, the following shall be applied:

- (i) All work at the affected area must cease.
- (ii) These must immediately be reported to the South African Heritage Resource Agency (SAHRA) and or Western Cape Heritage Resource Agency (in accordance with the applicable legislation). Heritage remains uncovered or disturbed during earthworks must not be further disturbed until the necessary approval has been obtained from the South SAHRA and or Western Cape Heritage Resource Agency.
- (iii) The area should be demarcated in order to prevent any further work there until an investigation has been completed.
- (iv) An archaeologist should be contacted immediately to provide advice on the matter.
- (v) Should it be a minor issue, the archaeologist will decide on future action. Depending on the nature of the find, it may include a site visit.
- (vi) If needed the necessary permit will be applied for with SAHRA. This will be done in conjunction with the appointed archaeologist.
- (vii) The removal of such archaeological material will be done by the archaeologist in lieu of the approval given by SAHRA, including any conditions stipulated by the latter.
- (viii) Work on site will only continue after the archaeologist/ SAHRA has agreed to such a matter.

Heritage remains include: archaeological remains (including fossil bones and fossil shells); coins; maddens, indigenous and/or colonial ceramics; any articles of value or antiquity; marine shell heaps; stone artifacts and bone remains; structures and other built features; rock art and rock engravings; shipwrecks; and graves or unmarked human burials. A qualified archaeologist must be contracted where necessary (at the expense of the applicant and in consultation with the relevant authority) to remove any human remains in accordance with the requirements of the relevant authority.

3.16 Care must be taken to ensure that material and topsoil required for rehabilitation is free of contamination from hydrocarbons.

3.17 Hydraulic fluid or chemicals required must be stored in a concrete lined surface with bund walls, designed in such a manner that any spillage can be contained and reclaimed without any impact on the surrounding environment. Should any spills occur, it should be cleaned immediately by removing spillage together with the polluted solids and dispose it in the authorised disposal site permitted of such waste. The regional office of the Department of Water and Sanitation must be notified within 24 hours of an incident that may pollute surface and underground water resources.



- 3.18 Chemical sanitation facilities or system such as toilets that do not rely on the seepage of liquids must be provided with a ratio of 1 for every 15 workers. These must be placed such that they prevent spills or leaks to the environment and must be maintained according to the operating instructions and the content thereof must be disposed of at an authorised wastewater treatment works. Proof of disposal must be kept on site and be produced upon request.
- 3.19 The holder of EA must ensure that any water uses listed in terms of Section 21 of National Water Act must get authorization from Department of Water and Sanitation prior to the commencement of such activities.
- 3.20 This EA does not purport to absolve the holder of EA from its common law obligations towards the owner of the surface of land affected.
- 3.21 The holder of EA must ensure that rehabilitation of the disturbed areas caused by operation at all times comply with the approved EMPr.
- 3.22 This EA may be amended or withdrawn at any stage for non-compliance and provides no relief from the provisions of any other relevant statutory or contractual obligations.
- 3.23 The holder of EA must note that in terms of Section 20 of the National Environmental Management: Waste Act, 2008 (Act No.59 of 2008), no person may commence, undertake or conduct a waste management activity, except in accordance, with the requirements of norms and standards determined in terms of Section 19 (3) for that activity or a waste management license is issued in respect of that activity if license is required.
- 3.24 An appeal under Section 43 (7) of the National Environmental Management Act (NEMA), Act 107 of 1998 (as amended) suspend an EA or exemption or any provisions of conditions attached hereto, or any directive unless the Minister directs otherwise.
- 3.25 Should you be notified by the Minister of a suspension of the authorisation pending appeal procedure, you may not commence with the activities until such time that the Minister allows you to commence with such activities in writing.
- 3.26 The department reserves the right to audit and/or inspect the activities without prior notification at any reasonable time and at such frequency as may be determined by the Regional Manager.
- 3.27 Subject to the commencement and duration requirements of the MPRDA, the EA is valid for the period for which the aforesaid permit/right is granted. When the renewal application of the permit/right is lodged; the EA validity, obligations and liabilities which were attached thereto immediately before the date on which it lapsed continue to be valid until the decision of the renewal is made and become valid again with the intervals of the approved renewal period.
- 3.28 This EA will only be effective on the event that a corresponding mining right is issued in terms of MPRDA as amended and none of the activities listed in this EA may commence without a mining right.



- 3.29 The listed activities, including site preparation, must not commence within 30 (thirty) calendar days of the date of the notification of the decision being sent to the registered I&APs. This is inclusive of the 10 days condonation in the event that an appeal is lodged with the appeal administrator. The effect of this environmental authorisation is suspended until such time as the appeal is decided.
- 3.30 Should there be any conflicting conditions between this EA and other approval granted by other authorities, it is upon the holder of EA to bring it to the attention of the department for resolution.

4 MANAGEMENT OF ACTIVITIES

- 4.1 A copy of the EA and EMPr must be kept at the property or on-site office where the activities will be undertaken. The EA and EMPr must be produced to any authorised officials of the department who request to see it and must be made available for inspection by any employee or agent of the holder of the EA who works or undertakes work at the property.
- 4.2 The contents of the EMPr and its objectives must be made known to all contractors, subcontractors, agent and any other people working on the site, and any updates or amendments to the EMPr must be submitted to the Department for approval.
- 4.3 Any complaint received from the I&AP during all phases of the operation must be recorded in a complaint register and attended to within 7 working days to the satisfaction of all concerned interested and affected parties.
- 4.4 The holder of the EA must prevent nuisance conditions or health hazards, or the potential creation of nuisance conditions or health hazards.
- 4.5 The holder of the EA must ensure that all non-recyclable waste is disposed of at waste management facilities licensed to handle such waste and all recyclable waste are collected by licensed waste management facilities for recycling, reuse or treatment.
- 4.6 In order to prevent nuisance conditions, the holder of the EA must ensure that all storage skips and bins are not overfilled. The holder of the EA must also make sure that littering of waste within the mining area is prohibited.
- 4.7 Non-compliance with any condition of this EA and the approved EMPr is an offence in terms of section 49A(1)(c) of NEMA and may result in criminal proceedings and issuing of a directive in terms of Section 28 and or a compliance notice in terms of section 31L of NEMA.
- 4.8 Only listed activities that are expressly specified in the EA must be undertaken, any additional or new activities not specified herein must be applied for by the holder and authorised by the competent authority before such activities may be commenced with. This condition is also applicable in the case of the amendment, addition, substitution, correction, and removal or updating of any detail in the aforesaid EA.
- 4.9 Rehabilitation of the disturbed surface caused by the operation must comply with the approved EMPr.

4.10 The Holder of EA must appoint the ECO before commencement of mining activities and ensure that the name and contact details of the ECO is made available to the Regional Manager within 30 days of commencement. The holder of EA must also ensure that an ECO is readily available to ensure that activities at all times comply with the issued EA and approved EMPr.

4.11 The ECO must:

4.11.1 Keep and maintain a detailed incidents register (including any spillages of fuels, chemicals or any other material).

4.11.2 Keep a complaint register on site indicating the complaint and how the issues were addressed, what measures were taken and what the preventative measures were implemented to avoid re-occurrence of complaints.

4.11.3 Keep records relating to monitoring and auditing on site and avail them for inspection to any relevant authorised officials.

4.11.4 Keep copies of all environmental reports submitted to the department.

4.11.5 Keep the records of all permits, licences and authorisations required by the operation.

4.11.6 Compile a monthly monitoring report and make it available to the department if requested.

4.11.7 The duties and responsibility of the ECO must not be seen as exempting the holder of the EA from the legal obligations in terms of the NEMA.

4.12 The footprint of the activities must be limited on the areas authorised for the actual mining works and operational activities and all areas outside of the footprint must be regarded as a "no go" areas.

5 REPORTING TO THE DEPARTMENT

5.1 The holder of EA must:

5.1.1 Submit an Environmental Audit Report to this department biennially and such report must be done by qualified Environmental Assessment Practitioner and the audit report must specify whether conditions of this environmental authorisation and EMPr/closure plan are adhered to;

5.1.2 The audit report must be in accordance to appendix 7 of the 2014 EIA regulations;

5.1.3 Identify and assess any new impacts and risks as a result of undertaking the activities, if applicable;

5.1.4 Identify shortcomings in the EMPr/closure plan, if applicable;

5.1.5 Identify the need, if any, for any changes to the management, avoidance and mitigation measures provided for in the EMPr;

5.1.6 If applicable, specify that the corrective action/s taken for the previous audit's non-conformities, was adequate and must;

- 5.1.7 Be submitted by the holder to the competent authority within 30 days from the date on which the auditor finalised the audit.
- 5.2 Should any shortcomings in terms of Regulation 34(4) be identified, the holder must submit recommendation to amend the EMPr/closure plan in order to rectify any shortcomings identified with the aforementioned audit report.
- 5.3 The holder of the EA must annually assess the environmental liabilities of the operation by using the master rates in line with the applicable Consumer Price Index (CPI) at the time and address the shortfall on the financial provision submitted in terms of section 24P of NEMA.
- 5.4 The holder of the EA must, within 24 hours of any incidents occurring, notify the Competent Authority of the occurrence or detection of any incident on the site, or incidental to the operation of the site, which has the potential to cause, or has caused pollution of the environment, health risks, nuisance conditions or water pollution.
- 5.5 The holder of the EA must, within 14 days, or a shorter period of time, if specified by the Competent Authority from the occurrence or detection of any incident referred to in condition 5.4, submit an action plan, which must include a detailed time schedule, and resource allocation signed off by top management, to the satisfaction of the Competent Authority of measures taken to –
- 5.5.1 Correct the impact resulting from the incident;
 - 5.5.2 Prevent the incident from causing any further impact; and
 - 5.5.3 Prevent a recurrence of a similar incident.
 - 5.5.4 In the event that measures have not been implemented within 21 days of the incident referred to in condition 5.4, or measures which have been implemented are inadequate, the Competent Authority may implement the necessary measures at the cost of the holder of the EA.

6 SITE SECURITY AND ACCESS CONTROL

- 6.1 The holder of the EA must ensure effective access control to the site to reasonably prevent unauthorised entry. Signs indicating the risks involved in unauthorised entry must be displayed at the entrance.
- 6.2 The mining area must be fenced off and lockable gates must be installed to restrict unauthorised access to the site.
- 6.3 Weatherproof, durable and legible notices in at least three official languages applicable in the area must be displayed at the entrance to the Site. These notices must prohibit unauthorised entry and state the hours of operation, the name, address and telephone number of the holder of the EA and the person responsible for the operation of the site.

7 EMERGENCY PREPAREDNESS PLAN

- 7.1 The holder of the EA must draft, maintain and implement an emergency preparedness plan and review it annually when conducting audit and after each emergency and or major accident. The plan must, amongst others, include:



- 7.1.1 Site Fire
 - 7.1.2 Spillage
 - 7.1.3 Natural disasters such as floods
 - 7.1.4 Industrial action
 - 7.1.5 Contact details of police, ambulances and any emergency center closer to the site.
- 7.2 The holder of EA must ensure that an up to date emergency register is kept during all phases of the operation. This register must be made available upon request by the department.

8 INVESTIGATIONS

- 8.1 If, in the opinion of the Competent Authority, nuisances or health risks may be or is occurring on the site, the holder of the EA must initiate an investigation into the cause of the problem or suspected problem.
- 8.2 If, in the opinion of the Competent Authority, pollution may be or is occurring, the holder of the EA must initiate an investigation into the cause of the problem or suspected problem. Such investigation must include the monitoring of the water quality variables and air quality, at those monitoring points and such frequency as may be specified by the Competent Authority.
- 8.3 Investigations carried out in terms of conditions 8.1 and 8.2 above must include the monitoring of the relevant environmental pollution and/or degradation, nuisance and health risk variables, at those monitoring points and such frequency to be determined in consultation with the Competent Authority.
- 8.4 Should the investigation carried out as per conditions 8.1 and 8.2 above reveal any unacceptable levels of pollution, the holder of the EA must submit mitigation measures to the satisfaction of the Competent Authority.
- 8.5 The holder of the EA must comply with Section 28 of the NEMA and conduct mining activities in an environmentally friendly manner.

9 COMMISSIONING AND DECOMMISSIONING

- 9.1 The commissioning and decommissioning of individual activity within the overall listed mining activities must take place within the phases and timeframes as set out in EMPr.

10 SITE CLOSURE

- 10.1 The holder of EA must apply for a closure certificate in terms of Section 43 of Mineral and Petroleum Resources Development Act (Act 28 of 2002), as amended within 180 days of occurrence of lapsing, abandonment, cancellation, cessation, relinquishment and completion of development.



- 10.2 The application for closure indicated above must be submitted together with all relevant documents as indicated in Section 43 of Mineral and Petroleum Resources Development Act (Act 28 of 2002), as amended.
- 10.3 No exotic but, only indigenous plants must be utilized for rehabilitation purposes.
- 10.4 The holder of EA remains responsible for any environmental liability, pollution or ecological degradation, the pumping and treatment of extraneous water, compliance with the conditions of EA and the management and sustainable closure thereof until the Minister has issued a Closure Certificate in terms of Section 43 of Mineral and Petroleum Resources Development Act (Act 28 of 2002). Where necessary the Minister may retain certain portion of financial provision for residual, health or environmental impacts that might be known in future.

11 NEMA PRINCIPLES

The NEMA Principles (set out in Section 2 of NEMA, which apply to the actions of all Organs of State, serve as guidelines by reference to which any Organ of State must exercise any function when taking any decision, and which must guide the interpretation, administration and implementation of any other law concerned with the protection or management of the environment), *inter alia*, provides for:

- the effects of decisions on all aspects of the environment to be taken into account;
- the consideration, assessment and evaluation of the social, economic and environmental impacts of activities (disadvantages and benefits), and for decisions to be appropriate in the light of such consideration and assessment;
- the co-ordination and harmonisation of policies, legislation and actions relating to the environment;
- the resolving of actual or potential conflicts of interest between Organs of State through conflict resolution procedures; and
- the selection of the best practicable environmental option.

12 DISCLAIMER

The Department of Mineral Resources & Energy in terms of the conditions of this environmental authorisation shall not be responsible for any damages or losses suffered by the holder, developer or his/her successor in any instance where construction or operation subsequent to construction is temporarily or permanently stopped for reasons of non-compliance with the conditions as set out herein or any other subsequent document or legal action emanating from this decision.



13 RECOMMENDATIONS

In view of the above, the NEMA principles, compliance with the conditions stipulated in this EA, and compliance with the EMPR/closure plan, the competent authority is satisfied that the proposed listed activities will not conflict with the general objectives of Integrated Environmental Management stipulated in Chapter 5 of NEMA, and that any potentially detrimental environmental impacts resulting from the listed activities can be mitigated to acceptable levels. **The Environmental Authorisation is accordingly granted.**

Your interest in the future of our environment is appreciated.

Kind Regards

.....
REGIONAL MANAGER: MINERAL REGULATION
WESTERN CAPE REGIONAL OFFICE
DATE:

ANNEXURE B:

*Pre-Application Feedback dated 19 November
2025*



Planning and Development
 E-mail: town.planning.application@george.gov.za
 Tel: +27 (0)44 801 9477

LAND USE PLANNING PRE-APPLICATION CONSULTATION FORM

PLEASE NOTE:

Pre-application consultation is an advisory session and is required prior to submission of an application for rezoning, consent use, temporary departure and subdivision. It does not in any way pre-empt the outcome of any future application which may be submitted to the Municipality.

PART A: PARTICULARS	
Reference number:	3943398
Purpose of consultation:	To discuss an application for the proposed consent use application on Farm 191/3, Division George
Brief proposal:	Consent use to allow for operation of a sand mine.
Property(ies) description:	
Date:	19 November 2025

Attendees:

	Name & Surname	Organisation	Contact Number	E-mail
Official	Ilané Huyser	George Muni.	0448019477	ihuyser@george.gov.za
Official	Fakazile Vava	George Muni.	0448019477	fvava@george.gov.za
Pre-applicant	Marike Vreken	MV TRP	082-927-5310	marike@vreken.co.za

Documentation provided for discussion:

(Include document reference, document/plan dates and plan numbers where possible and attach to this form)

	Description	Plan No / Reference	Date
A	Locality Plan		
B	Site Development Plan		
C	Environmental Authorisation		
D	Mine Closure Plan		
E	Mine Rehab Plan		

Has pre-application been undertaken for a Land Development application with the Department of Environmental Affairs & Development Planning (DEA&DP)?

YES	NO
-----	----

(If so, please provide a copy of the minutes)

Comprehensive overview of proposal:

1. Background

- 1.1. An Environmental Authorisation was granted for a sand mine (Quarry) on Portion 3 of the Farm Boven Lange Valley No 191, Division George (copy attached).
- 1.2. A Land Development Application must now be submitted to obtain the required land development rights to implement the EA.
- 1.3. The locality of the Application Area is shown in the Figure below:



FIGURE 1: DISTRICT ROADS TO BE DEPROCLAIMED

2. Development Proposal

- 2.1. Description of Activities
 - (i) Establishment of site infrastructure including the access road, site office and weighbridge. The site office will be approximately 40m² and the weigh bridge approximately 6m x 20m.

- (ii) The mining area will be approximately 5,3697 ha in extent.
- (iii) Progressive removal of alien vegetation from the site as sand mining progresses

2.2. Building lines / Setbacks

- (i) The proposed quarry will be setback 60m from the Garden Route National Park to the north, and 10m from the eastern and western lateral boundaries.
- (ii) A 60m buffer us proposed between the eastern property boundary near the dwelling house on Portion 4 of Farm No 191, and the proposed mine.
- (iii) A 60m building line will be maintained between the proposed quarry and the National Road to the south of the application area.
- (iv) Clearance of the remaining alien trees from the 60 m buffer zone adjacent to the N2 National Road and rehabilitation back to natural vegetation.

2.3. Access

- (i) Access to the application area will be obtained from the existing access on the Nation National Road, to the south west of the property, at approximately the 45,8km SANRAL Road marker.
- (ii) An alternative access is proposed to the south east of the application area. This will be opposite the “Ubuntu” access at approximately the 46,6km Road Mark.
- (iii) SANRAL will determine the final position of the access.



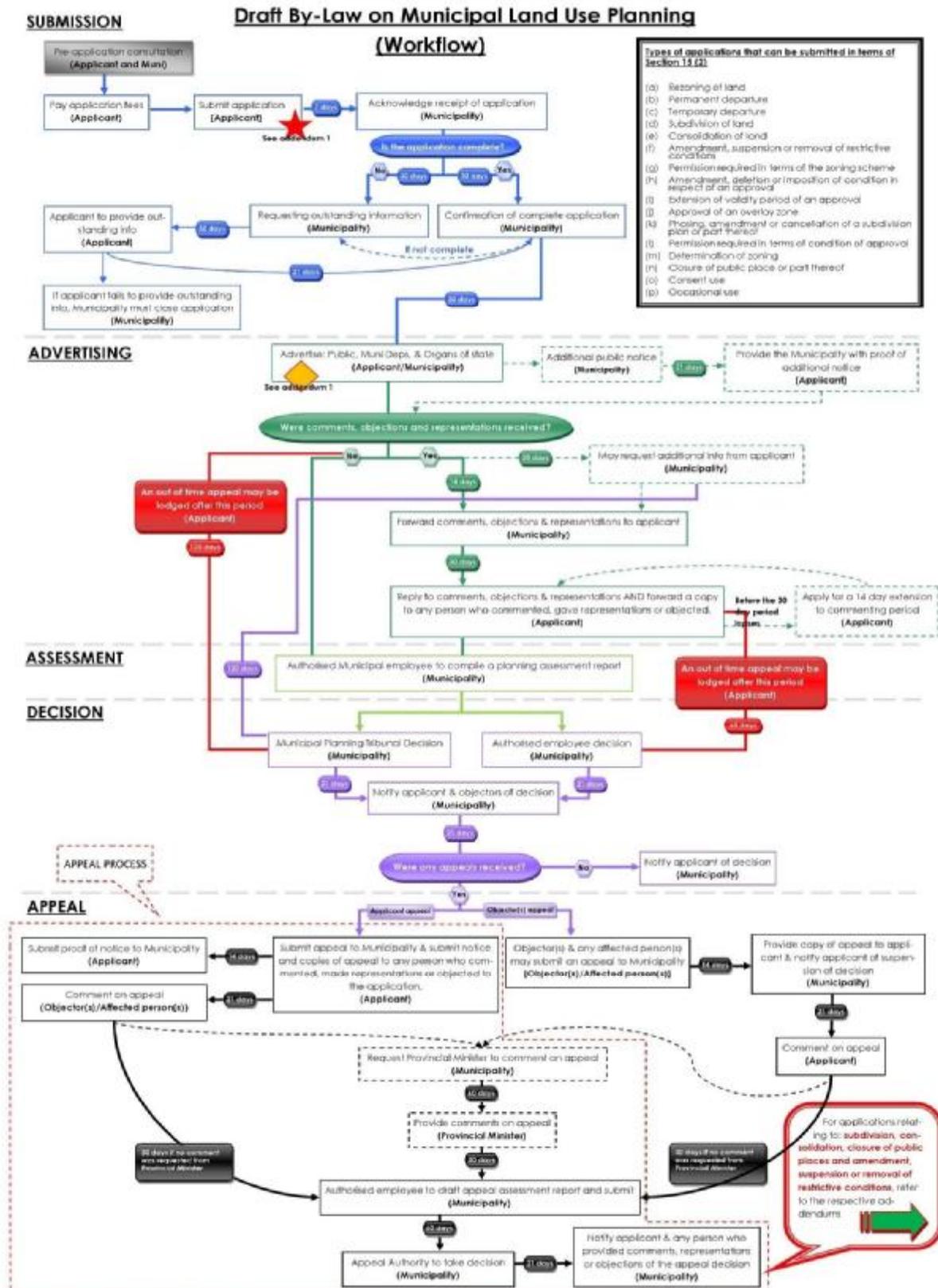
FIGURE 2: PROPOSED SITE DEVELOPMENT PLAN

3. Development Application

- 3.1. It is our understanding that the application to be submitted to George Municipality will be for a consent use for a “quarry” on the Agricultural zoned land, in terms of Section 15(2)(o) of the George Municipality’s Land Use Planning Bylaw.

PART B: APPLICATION PROCESS

(WILL FULLY APPLY ONLY ONCE LUPA REGULATIONS ARE IN FORCE)



PART C: QUESTIONNAIRES

SECTION A:

DETERMINATION OF APPLICATION TYPES, PRESCRIBED NOTICE AND ADVERTISEMENT PROCEDURES

Tick if relevant		What land use planning applications are required?	Application fees payable
	2(a)	a rezoning of land;	R
	2(b)	a permanent departure from the development parameters of the zoning scheme;	R
	2(c)	a departure granted on a temporary basis to utilise land for a purpose not permitted in terms of the primary rights of the zoning applicable to the land;	R
	2(d)	a subdivision of land that is not exempted in terms of section 24, including the registration of a servitude or lease agreement;	R
	2(e)	a consolidation of land that is not exempted in terms of section 24;	R
	2(f)	a removal, suspension or amendment of restrictive conditions in respect of a land unit;	R
	2(g)	a permission required in terms of the zoning scheme;	R
	2(h)	an amendment, deletion or imposition of conditions in respect of an existing approval;	R
	2(i)	an extension of the validity period of an approval;	R
	2(j)	an approval of an overlay zone as contemplated in the zoning scheme;	R
	2(k)	an amendment or cancellation of an approved subdivision plan or part thereof, including a general plan or diagram;	R
	2(l)	a permission required in terms of a condition of approval;	R
	2(m)	A determination of a zoning;	R
	2(n)	A closure of a public place or part thereof;	R
√	2(o)	a consent use contemplated in the zoning scheme;	To be determined
	2(p)	an occasional use of land;	R
	2(q)	to disestablish a homeowner's association;	R
	2(r)	to rectify a failure by a homeowner's association to meet its obligations in respect of the control over or maintenance of services;	R
	2(s)	a permission required for the reconstruction of an existing building that constitutes a non-conforming use that is destroyed or damaged to the extent that it is necessary to demolish a substantial part of the building	R
Tick if relevant		What prescribed notice and advertisement procedures will be required?	Advertising fees payable
Y	N	Serving of notices (i.e. registered letters etc.)	R
Y	N	Publication of notices (i.e. Provincial Gazette, Local Newspaper(s) etc.)	R
Y	N	Additional publication of notices (i.e. Site notice, public meeting, local radio, website, letters of consent etc.)	R
Y	N	Placing of final notice (i.e. Provincial Gazette etc.)	R
TOTAL APPLICATION FEE* (VAT excluded):			To be determined

PLEASE NOTE: * Application fees are estimated on the information discussed and are subject to change with submission of the formal application and/or yearly application fee increase.

SECTION B:

PROVISIONS IN TERMS OF THE RELEVANT PLANNING LEGISLATION / POLICIES / GUIDELINES

QUESTIONS REGARDING PLANNING POLICY CONTEXT	YES	NO	TO BE DETERMINED	COMMENT										
Is any Municipal Integrated Development Plan (IDP)/Spatial Development Framework (SDF) and/or any other Municipal policies/guidelines applicable? If yes, is the proposal in line with the aforementioned documentation/plans?	X			Consistent										
Any applicable restrictive condition(s) prohibiting the proposal? If yes, is/are the condition(s) in favour of a third party(ies)? [List condition numbers and third party(ies)]			X	Conveyancer to confirm if there is any restrictive conditions										
Any other Municipal by-law that may be relevant to application? (If yes, specify)			X											
Zoning Scheme Regulation considerations:														
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>Which zoning scheme regulations apply to this site?</td> </tr> <tr> <td><i>Integrated George Zoning Scheme Bylaw</i></td> </tr> <tr> <td>What is the current zoning of the property?</td> </tr> <tr> <td><i>Agriculture Zone I</i></td> </tr> <tr> <td>What is the proposed zoning of the property?</td> </tr> <tr> <td><i>Agriculture Zone I</i></td> </tr> <tr> <td>Does the proposal fall within the provisions/parameters of the zoning scheme?</td> </tr> <tr> <td><i>No – consent use for a quarry to be applied for</i></td> </tr> <tr> <td>Are additional applications required to deviate from the zoning scheme? (if yes, specify)</td> </tr> <tr> <td></td> </tr> </table>					Which zoning scheme regulations apply to this site?	<i>Integrated George Zoning Scheme Bylaw</i>	What is the current zoning of the property?	<i>Agriculture Zone I</i>	What is the proposed zoning of the property?	<i>Agriculture Zone I</i>	Does the proposal fall within the provisions/parameters of the zoning scheme?	<i>No – consent use for a quarry to be applied for</i>	Are additional applications required to deviate from the zoning scheme? (if yes, specify)	
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Does the proposal fall within the provisions/parameters of the zoning scheme?														
<i>No – consent use for a quarry to be applied for</i>														
Are additional applications required to deviate from the zoning scheme? (if yes, specify)														
QUESTIONS REGARDING OTHER PLANNING CONSIDERATIONS	YES	NO	TO BE DETERMINED	COMMENT										
Is the proposal in line with the Provincial Spatial Development Framework (PSDF) and/or any other Provincial bylaws/policies/guidelines/documents?	X													
Are any regional/district spatial plans relevant? If yes, is the proposal in line with the document/plans?	X													

SECTION C:
CONSENT / COMMENT REQUIRED FROM OTHER ORGANS OF STATE

QUESTIONS REGARDING CONSENT / COMMENT REQUIRED	YES	NO	TO BE DETERMINED	OBTAIN APPROVAL / CONSENT / COMMENT FROM:
Is/was the property(ies) utilised for agricultural purposes?	X			Western Cape Provincial Department of Agriculture
Will the proposal require approval in terms of Subdivision of Agricultural Land Act, 1970 (Act 70 of 1970)?			X	National Department of Agriculture
Will the proposal trigger a listed activity in terms of National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA)?	X			Western Cape Provincial Department of Environmental Affairs & Development Planning (DEA&DP)
Will the proposal require authorisation in terms of Specific Environmental Management Act(s) (SEMA)? (National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003) (NEM:PAA) / National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) (NEM:BA) / National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004) (NEM:AQA) / National Environmental Management: Integrated Coastal Management Act, 2008 (Act 24 of 2008) (NEM:ICM) / National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (NEM:WA) (strikethrough irrelevant)	X			National Department of Environmental Affairs (DEA) & DEA&DP
Will the proposal require authorisation in terms of the National Water Act, 1998 (Act 36 of 1998)?		X		National Department of Water & Sanitation (DWS)
Will the proposal trigger a listed activity in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	X			South African Heritage Resources Agency (SAHRA) & Heritage Western Cape (HWC)
Will the proposal have an impact on any National or Provincial roads?	X			National Department of Transport / South Africa National Roads Agency Ltd. (SANRAL) & Western Cape Provincial Department of Transport and Public Works (DTPW)
Will the proposal trigger a listed activity in terms of the Occupational Health and Safety Act, 1993 (Act 85 of 1993): Major Hazard Installations Regulations		X		National Department of Labour (DL)

QUESTIONS REGARDING CONSENT / COMMENT REQUIRED	YES	NO	TO BE DETERMINED	OBTAIN APPROVAL / CONSENT / COMMENT FROM:
Will the proposal affect any Eskom owned land and/or servitudes?		X		Eskom
Will the proposal affect any Telkom owned land and/or servitudes?		X		Telkom
Will the proposal affect any Transnet owned land and/or servitudes?		X		Transnet
Is the property subject to a land / restitution claims?		X		National Department of Rural Development & Land Reform
Will the proposal require comments from SANParks and/or CapeNature?	X			SANParks / CapeNature
Will the proposal require comments from DEFF?	X			Department of Environment, Forestry and Fishery
Is the property subject to any existing mineral rights?			X	National Department of Mineral Resources
Does the proposal lead to densification to such an extent that the number of schools, healthcare facilities, libraries, safety services, etc. In the area may be impacted on? (strikethrough irrelevant)		X		Western Cape Provincial Departments of Cultural Affairs & Sport (DCAS), Education, Social Development, Health and Community Safety

**SECTION D:
SERVICE REQUIREMENTS**

DOES THE PROPOSAL REQUIRE THE FOLLOWING ADDITIONAL INFRASTRUCTURE / SERVICES?	YES	NO	TO BE DETERMINED	OBTAIN COMMENT FROM: <i>(list internal department)</i>
Electricity supply:			X	Directorate: Electro-technical Services
Water supply:			X	Directorate: Civil Engineering Services
Sewerage and wastewater:			X	Directorate: Civil Engineering Services
Stormwater:			X	Directorate: Civil Engineering Services
Road network:			X	Directorate: Civil Engineering Services
Telecommunication services:			X	
Other services required? Please specify.			X	
Development charges:			X	

PART D: COPIES OF PLANS / DOCUMENTS TO BE SUBMITTED AS PART OF THE APPLICATION

COMPULSORY INFORMATION REQUIRED:

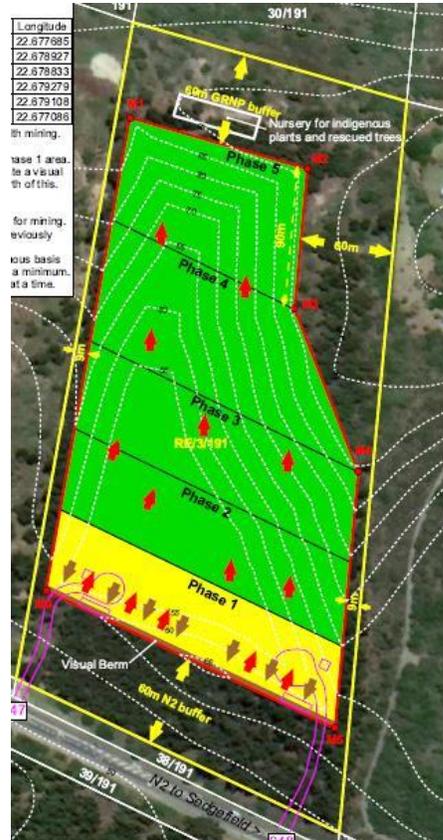
Y	N	Power of Attorney / Owner's consent if applicant is not owner (if applicable)	Y	N	S.G. noting sheet extract / Erf diagram / General Plan
Y	N	Motivation report / letter	Y	N	Full copy of the Title Deed
Y	N	Locality Plan	Y	N	Site Layout Plan
Y	N	Proof of payment of fees	Y	N	Bondholder's consent (conveyance attorney to confirm)

MINIMUM AND ADDITIONAL REQUIREMENTS:

Y	N	Site Development Plan	Y	N	Conveyancer's Certificate
Y	N	Land Use Plan	Y	N	Proposed Zoning plan
Y	N	Phasing Plan	Y	N	Consolidation Plan
Y	N	Abutting owner's consent	Y	N	Landscaping / Tree Plan
Y	N	Proposed Subdivision Plan (including street names and numbers)	Y	N	Copy of original approval letter
Y	N	Services Report or indication of all municipal services / registered servitudes	Y	N	Homeowners' Association consent
Y	N	Copy of Environmental Impact Assessment (EIA) / Heritage Impact Assessment (HIA) / Traffic Impact Assessment (TIA) / Traffic Impact Statement (TIS) / Major Hazard Impact Assessment (MHIA) / Environmental Authorisation (EA) / Record of Decision (ROD) (strikethrough irrelevant)	Y	N	1 : 50 / 1:100 Flood line determination (plan / report)
Y	N	Other (specify)	Y	N	Required number of documentation copies

PART E: DISCUSSION

Pre-application as discussed on 19 November 2025 for the proposed consent use in 191/3 to allow for the operation of a sand mine on the property. The following site layout plan was provided for discussion.



Town Planning

- Written consent must be obtained from SANRAL for the proposed development and said access. It is advisable that this comment is acquired before the application is submitted.
- NID to be submitted to Heritage Western Cape.
- To consider visual impact of the development specially form the N2. The proposed use is visually intrusive from the road. To consider the necessary mitigations and beautifying the site (especially as seen from the N2 route) – to be motivated and indicated on site layout plan.
- Need to confirm and indicate if any structures will be erected (to show location, extent, and internal layout). Building line relaxations must be applied for where necessary.
- Confirm duration of sand mine.
- Need to address compliance with MSDF 2023, SPLUMA, Zoning Scheme etc. and Rural Guidelines.
- Site Layout Plan must contain topographical features and landscape measures in terms pf the proposed mining activity.
- All environmental elements and buffers must be indicated on the Site Layout Plan. To also consider all watercourses and wetlands.
- The application must be prepared in line with the ROD, Environmental authorisations as well as EMP.
- Comments from Western Cape Agriculture will be required as part of the PPP process.

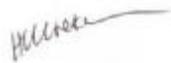
- Comments from DEA&DP (planning and environmental) & SANPARKS will be required as part of the PPP process .
- Rehabilitation and decommissioning of the mine to be clearly established

CES comments

- Access is restricted to the N2, requiring SANRAL approval.
- Access should comply to the GIZS 2023, alternatively any deviation should be included within a land use application.
- All parking must be provided on-site, in compliance with the GIZS 2023 parking requirements.
- No parking is allowed within the road reserve, and the owner may be held liable for any costs incurred in preventing unauthorized parking within this area.
- Nomral PT parking ration apply.
- All vehicle mobility should be done on site and must be indicated on the layout plan.
- Access should comply to the GIZS 2023.
- Development Charges (DCs)
- Normal Development Charges (DCs), if applicable, will be levied in accordance with the DC policy and the applicable By-law and or policy.
- No Municipal water and/or sanitation is available. The developer will have to provide the required services on site. Should the municipal services be extended to the area, the developer will be required to connect and pay DC, applicable on the date when services become available.
- The location of existing municipal services must be confirmed on site.
- The developer must ensure full compliance with the relevant Stormwater By-law.
- Developer will be required to conduct a stormwater management plan.

PART F: SUMMARY / WAY FORWARD

Refer to comments above.

OFFICIAL:		PRE-APPLICANT:	Marike Vreken
Town Planner	Fakazile Vava		(FULL NAME)
OFFICIAL:			
Senior Town Planner	Ilané Huyser	SIGNED:	
DATE:	2025.11.27	DATE:	2025-11-18

**Please note that the above comments are subject to the documents and information available to us at the time of the pre-application meeting and we reserve our rights to elaborate on this matter further and/or request more information/documents should it deemed necessary.*

ANNEXURE C:

*Power of Attorney & Company Resolution
dated 11 November 2025*

SPECIAL POWER OF ATTORNEY

I/We SIMON PIETER VISSER

..... the undersigned,

do hereby nominate, constitute and appoint
THE AUTHORISED AGENTS OF MARIKE VREKEN TOWN & REGIONAL PLANNERS CC and duly
authorised employees of Marike Vreken Town Planners CC
with power of Substitution to be *my/our lawful representatives in *my/our application for:

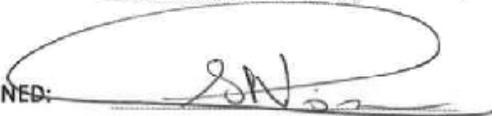
CONSENT USE & SDP APPROVAL

on

**THE REMAINDER OF PORTION 3 OF THE FARM NO 191 IN THE MUNICIPALITY AND
DIVISION OF GEORGE, WESTERN CAPE PROVINCE.**

In addition to apply for such amendments of any zoning schemes / structure plans /
Removal of Title Deed Restrictions as may be deemed necessary and to make other
necessary application and further to represent *me/us at any inquiry in relation to the
abovementioned matters and generally do whatever may be necessary or desirable to
procure the approval of the application, by virtue of those present and whatever our said
representative have to date done herein.

Signed at KLIPHEUWEL on this 11 day of NOVEMBER 2025

SIGNED: 

SIGNED: _____

SIGNED: _____

In the presence of the undersigned witnesses;

AS WITNESSES:

1.  _____

2. _____

DIE TRUSTEES INDETYD PIETER VISSER TRUST (IT191/2001)

(Name of Company, Partnership, Trust or Close Corporation)

RESOLUTION

Resolution passed at the meeting of the Shareholders/ Partners/ Trustees/ Members held in KUPHEUNELON on the 11 day of NOVEMBER 2025.

Resolved that S.P. VISSER in his capacity as TRUSTEE, be and is hereby authorised to do whatever may be necessary to give effect to this resolution and to enter into and to sign such documents necessary to proceed with the applications as specified hereunder on behalf of the Company/ Partnership/ Trust/ Close Corporation with such modification as he/ she in his/ her sole discretion shall deem fit, his/ her signature to be conclusive proof that the documents which bear it are authorised in terms hereof.

DESCRIPTION OF PROPERTY:

THE REMAINDER OF PORTION 3 OF THE FARM NO 191 IN THE MUNICIPALITY AND DIVISION OF GEORGE, WESTERN CAPE PROVINCE

NATURE OF APPLICATION:

CONSENT USE & SDP APPROVAL

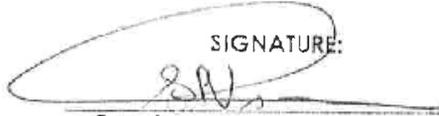
SIGNATURE OF SHAREHOLDERS/ PARTNERS/ TRUSTEES/ MEMBERS:

NAME:

S.P. VISSER

L. VISSER

SIGNATURE:


l Visser

ANNEXURE D:

Application Form dated 27 January 2026



Application Form for Application(s) Submitted in terms of the Land Use Planning By-Law for George Municipality

NOTE: Please complete this form by using: Font: Calibri; Size: 11					
PART A: APPLICANT DETAILS					
First name(s)	Marike				
Surname	Vreken				
SACPLAN Reg No. (if applicable)	Pr. Pln A/1101/1999				
Company name (if applicable)	Marike Vreken Town Planners CC				
Postal Address	P.O. Box 2180				
	Knysna	Postal Code	6570		
Email	info@vreken.co.za / marike@vreken.co.za				
Tel	044-382-0420	Fax		Cell	082-927-5310
PART B: REGISTERED OWNER(S) DETAILS (if different from applicant)					
Registered owner	Pieter Visser Trust (IT191/2001)				
Address					
		Postal code			
E-mail					
Tel		Fax		Cell	

PART C: PROPERTY DETAILS (in accordance with Title Deed)

Property Description [Erf / Erven / Portion(s) and Farm number(s), allotment area.]	The Remainder of Portion 3 of the Farm no 191, Boven Lange Valley, in the Municipality and Division of George Western Cape Province					
Physical Address						
GPS Coordinates	33°59'48.63"S 22°40'41.71"E		Town/City	George		
Current Zoning	Agricultural Zone I	Extent	9.0516 Ha	Are there existing buildings?	Y	N
Current Land Use	Agriculture / Vacant					
Title Deed number & date	T22778/1948					
Any restrictive conditions prohibiting application?	Y	N	If Yes, list condition number(s).	Restrictions subject to the approval from the Controlling Authority (Provincial Roads Authority)		
Are the restrictive conditions in favour of a third party(ies)?	Y	N	If Yes, list the party(ies).			
Is the property encumbered by a bond?	Y	N	If Yes, list Bondholder(s)?	Nedbank		
Has the Municipality already decided on the application(s)?	Y	N	If yes, list reference number(s)?			
Any existing unauthorized buildings and/or land use on the subject property(ies)?	Y	N	If yes, is this application to legalize the building / land use?	Y	N	
Are there any pending court case / order relating to the subject property(ies)?	Y	N	Are there any land claim(s) registered on the subject property(ies)?	Y	N	

PART D: PRE-APPLICATION CONSULTATION

Has there been any pre-application consultation?	Y	N	If Yes, please complete the information below and attach the minutes.			
Official's name	Ilané Huyser Fakazile Vava		Reference number	3943398	Date of consultation	19 November 2025

PART E: LAND USE APPLICATIONS IN TERMS OF SECTION 15 OF THE LAND USE PLANNING BY-LAW FOR GEORGE MUNICIPALITY & APPLICATION FEES PAYABLE

***Application fees that are paid to the Municipality are non-refundable and proof of payment of the application fees must accompany the application.**

BANKING DETAILS

Name: **George Municipality**
 Bank: **First National Bank (FNB)**
 Branch no.: **210554**
 Account no.: **62869623150**
 Type: **Public Sector Cheque Account**
 Swift Code: **FIRZAJJ**
 VAT Registration Nr: **4630193664**
 E-MAIL: **msbrits@george.gov.za**
***Payment reference:** Erven ____, George/Wilderness/Hoekwil...

PART F: DETAILS OF PROPOSAL

Brief description of proposed development / intent of application:

See attached Motivation report

PART G: ATTACHMENTS & SUPPORTING INFORMATION FOR LAND USE PLANNING APPLICATIONS

Please complete the following checklist and attach all the information relevant to the proposal. Failure to submit all information required will result in the application being deemed incomplete.

Is the following compulsory information attached?

Y	N	Completed application form	Y	N	Pre-application Checklist (where applicable)
Y	N	Power of Attorney / Owner's consent if applicant is not owner	Y	N	Bondholder's consent
Y	N	Motivation report / letter	Y	N	Proof of payment of fees
Y	N	Full copy of the Title Deed	Y	N	S.G. noting sheet extract / Erf diagram / General Plan
Y	N	Locality Plan	Y	N	Site layout plan

Minimum and additional requirements:

Y	N	N/A	Conveyancer's Certificate	Y	N	N/A	Land Use Plan / Zoning plan
Y	N	N/A	Proposed Subdivision Plan (including street names and numbers)	Y	N	N/A	Phasing Plan
Y	N	N/A	Consolidation Plan	Y	N	N/A	Copy of original approval letter (if applicable)
Y	N	N/A	Site Development Plan	Y	N	N/A	Landscaping / Tree Plan

Y	N	N/A	Abutting owner's consent	Y	N	N/A	Home Owners' Association consent
Y	N	N/A	Copy of Environmental Impact Assessment (EIA) / Heritage Impact Assessment (HIA) / Traffic Impact Assessment (TIA) / Traffic Impact Statement (TIS) / Major Hazard Impact Assessment (MHIA) / Environmental Authorisation (EA) / Record of Decision (ROD) (strikethrough irrelevant)	Y	N	N/A	1 : 50 / 1:100 Flood line determination (plan / report)
Y	N	N/A	Services Report or indication of all municipal services / registered servitudes	Y	N	N/A	Required number of documentation copies 2 copies
Y	N	N/A	Any additional documents or information required as listed in the pre-application consultation form / minutes	Y	N	N/A	Other (specify)

PART H: AUTHORISATION(S) IN TERMS OF OTHER LEGISLATION

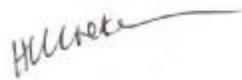
Y	N/A	National Heritage Resources Act, 1999 (Act 25 of 1999)	Y	N/A	Specific Environmental Management Act(s) (SEMA) (e.g. Environmental Conservation Act, 1989 (Act 73 of 1989), National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004), National Environmental Integrated Coastal Management Act, 2008 (Act 24 of 2008), National Environmental Management: Waste Act, 2008 (Act 59 of 2008), National Water Act, 1998 (Act 36 of 1998) (strikethrough irrelevant)	
Y	N/A	National Environmental Management Act, 1998 (Act 107 of 1998)				
Y	N/A	Subdivision of Agricultural Land Act, 1970 (Act 70 of 1970)				
Y	N/A	Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013)(SPLUMA)				
Y	N/A	Occupational Health and Safety Act, 1993 (Act 85 of 1993): Major Hazard Installations Regulations				
Y	N/A	Land Use Planning Act, 2014 (Act 3 of 2014) (LUPA)				Y
Y	N	If required, has application for EIA / HIA / TIA / TIS / MHIA approval been made? If yes, attach documents / plans / proof of submission etc. TIA attached as Annexure G				
Y	N	If required, do you want to follow an integrated application procedure in terms of section 44(1) of the Land-Use Planning By-law for George Municipality?				

SECTION I: DECLARATION

I hereby wish to confirm the following:

1. *That the information contained in this application form and accompanying documentation is complete and correct.*
2. *The Municipality has not already decided on the application.*
3. *I'm aware that it is an offense in terms of section 86(1)(d) to supply particulars, information or answers in an application, knowing it to be false, incorrect or misleading or not believing them to be correct.*
4. *I am properly authorized to make this application on behalf of the owner and (where applicable) copies of such full relevant Powers of Attorney/Consent are attached hereto.*
5. *I have been appointed to submit this application on behalf of the owner and it is accepted that correspondence from and notifications by the Municipality in terms of the by-law will be sent only to me as the authorised agent and the owner will regularly consult with the agent in this regard (where applicable).*
6. *That this submission includes all necessary land use planning applications required to enable the development proposed herein.*
7. *I confirm that the relevant title deed(s) have been read and that there are no restrictive title deed restrictions, which impact on this application, or alternatively an application for removal/amendment/suspension forms part of this submission.*
8. *I am aware of the status of the existing bulk services and infrastructure in the subject area and that I am liable for any possible development charges which may be payable as a result of the proposed development.*
9. *I acknowledge that in terms of the Protection of Personal Information Act (POPIA) all correspondence will be communicated directly and only to myself (the applicant). No information will be given to any third party and/or landowner (if the landowner is not the applicant). I herewith take responsibility to convey all correspondence to the relevant parties.*

Applicant's signature: _____



Date: _____

29 Jan. 26

Full name: _____

Hendrika Maria Vreken

Professional capacity: _____

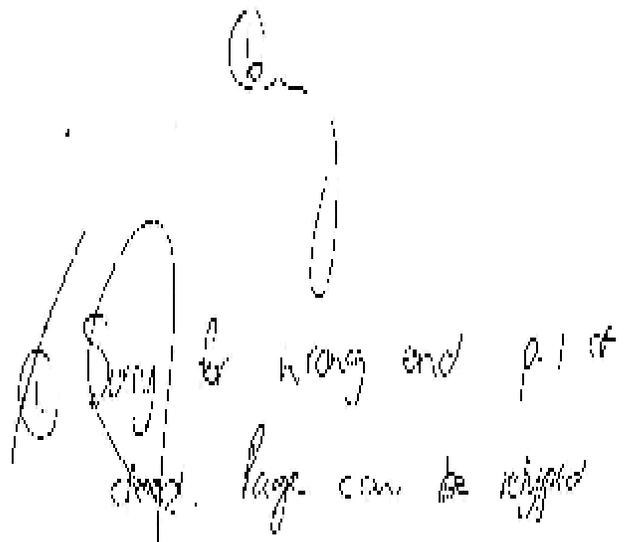
Town Planner

SACPLAN Reg. Nr: _____

Pr. Pln A/1101/1999

ANNEXURE E:

Title Deed (22778/1948)



25/2/19
M. S. P.
K. W. P.
band end.

Sharon Prinsloo Prokureurs
Varingstraat 3
Windsor Park
Blok G4
GEORGE

Opgelees deur my

TRANSPORTLESORGER
JANINE FOUCHE

Deeds Office Registration fees as per Act 47 of 1937		
	Amount	Office Fee
Purchase Price	R 200 000,00	R 1522,00
Reason for exemption	Category Exemption	Exemption I to Sec/Reg. Act/Proc.



for further copies -

000007168 / 2019

TRANSPORTAKTE

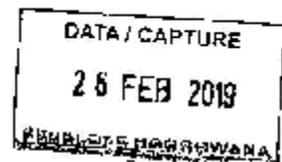
HIERBY WORD BEKEND GEMAAK DAT

JANINE FOUCHE

voor my verskyn het, REGISTRATEUR VAN AKTES te KAAPSTAD, hy/sy die genoemde komparant synde behoorlik daartoe gemaagtig kragtens 'n Volmag aan hom/haar verleen deur

ANOBE BADENHORST
Identiteitsnommer 591003 0162 08 0
Getroud buite gemeenskap van goed

geteken te GEORGE op 11 Desember 2018



-5-

100 000,00	
000003842 / 2019	
26 FEB 2019	

6 100 000,00

En genoemde Komparant het verklaar dat sy/haar prinsipaal, op 21 November 2018, waarlik en wettiglik verkoop by Privaat ooreenkoms, en dat hy/sy, in sy/haar voornoemde hoedanigheid hierby bedee, en transporteer aan en ten gunste van

Die Trustees indertyd van PIETER VISSER TRUST
Registrasienommer IT919/2001

diese Opvolgers in Afnip of Regverkrygendes, in volkome en vrye elendom

RESTANT GEDEELTE 3 VAN DIE PLAAS NOMMER 191, IN DIE
MUNISIPALITEIT EN AFDELING GEORGE, PROVINSIE WES-KAAP

GROOT 9,0516 (NEGE KOMMA NUL VYF EEN SES) Hektaar

AANVANGLIK OORGEDRA kragtens Transportakte Nommer T22778/1948 met
Kaart nommer 6155/48 wat daarop betrekking het en gehou kragtens
Transportakte Nommer T39961/2018

- A. **ONDERHEWIG** aan die voorwaardes waarna verwys word in gewysigde
Ondebrief gedateer 26 Julie 1898 (George Elendomsbrief, Deel Boekdeel 14 Folio 8)
en aan die voorwaardes daarin vervat, een waarvan soos volg lees :

"The land thus granted being further subject to all such duties and regulations as
either are already or shall in future be established respecting lands granted on
similar tenure.

ONDERHEWIG VERDER aan die volgende voorwaardes vervat in Transportakte
Nommer T22778/1948, opgelê deur die beherende gesag met goedkeuring van die
onderverdeling ingevolge Artikel 11(6) van Wet 21 van 1940, naamlik :

- (1) The land may not be subdivided without the written approval of the
Controlling Authority as defined in Act Number 21 of 1940.
- (2) Not more than one dwelling house, together with such outbuildings as are
ordinarily required to be used in connection therewith, shall be erected on
the land except with the written approval of the Controlling Authority as
defined in Act Number 21 of 1940.

- (3) The land shall be used for residential and agricultural purposes only and no store or place of business or industry whatsoever may be opened, or conducted on the land without the written approval of the Controlling Authority as defined in Act Number 21 of 1940.

- (4) No building or any structure whatsoever shall be erected within a distance of 300 Cape Feet from the centre line of the national road, without the written consent of the Controlling Authority as defined in Act Number 21 of 1940."



WESHALWE die komparant afstand doen van al die regte en titel wat

ANOBE BADE HORST , Getroud soos vermeld

voorheen op genoemde eiendom gehad het, en gevolglik ook erken het dat sy geheel en al van die besit daarvan onthef en nie meer daartoe geregtig is nie en dat, kragtens hierdie akte, bogenoemde

**Die Trustees indertyd van PIETER VISSER TRUST
Registrasie nommer IT919/2001**

diese Opvolgers in titel of Regverkrygendes, tans en voortaan daartoe geregtig is, ooreenkomstig plaaslike gebruik, behoudens die regte van die Staat en ten slotte erken hulle dat die verkoopprijs die bedrag van R2 200 000,00 (TWEË MILJOEN TWEË HONDERD DUISEND RAND) beloop.

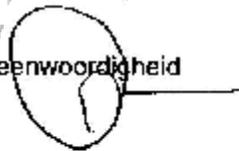
TEN BEWYS WAARVAN ek, genoemde Registrateur, tesame met die Komparant hierdie Akte onderteken en dit met die Ampseël bekragtig het.

ALDUS GEDOEN EN VERLY op die Kantoor van die REGISTRATEUR VAN AKTES te
KAAPSTAD op hede die

26 FEB 2019

2019

In my teenwoordigheid



REGISTRATEUR VAN AKTES



Sharon Prinsloo Prokureurs
Varingstraat 3
Windsor Park
Blok G4
GEORGE

Handwritten signature

Opgestel deur my
Handwritten signature
TRANSPORTBESORGER
SHARON PRINSLOO

VOLMAG OM TRANSPORT TE GEE

Ek, die ondergetekende

ANOBE BADENHORST
Identiteitsnommer 591003 0162 08 0
Getroud buite gemeenskap van goed

benoem hiermee

JANINE FOUCHE

met mag van substitusie om as my ware en wettige Gemagtigde en Agent te verskyn voor die REGISTRATEUR VAN AKTES te KAAPSTAD, en daar, en dan namens my transport uit te maak aan

Die Trustees indertyd van die PIETER VISSER TRUST
Registrasienuommer IT919/2001

van die volgende eiendom

RESTANT GEDEELTE 3 VAN DIE PLAAS NOMMER 191, IN DIE
MUNISIPALITEIT EN AFDELING GEORGE, PROVINSIE WES-KAAP

GROOT 9,0516 (NEGE KOMMA NUL VYF EEN SES) Hektaar

GEHOU KRAGTENS Transportakte Nommer T39961/2018

wat verkoop is aan die koper/s deur die verkoper/s op 21 November 2018, vir die bedrag van R2 200 000,00 (Twee Miljoen Twee Honderd Duisend Rand), in volle en vrye eiendom.

Handwritten signature

Handwritten signatures

Wat behoorlik betaal of verseker is, en in die algemeen, ten einde voorgenoemde doeleindes uit te voer of te laat doen as wat nodig is, net so volmaak en doeltreffend asof ekself teenwoordig was en hierin gehandel het, en hiermee word bekragtig en toegestaan en word belowe en ooreengekom om te bekragtig en toe te staan, alles en wat ook genoemde Prokureur en Agent kragtens hierdie akte wettiglik doen, en laat doen.

GETEKEN TE GEORGE op 11 Desember 2018
in die teenwoordigheid van die ondergetekende getuies.

AS GETUIES:

1. FR. Rebus
2. [Handwritten Signature]

AB
ANOBE BADENHORST

For Information Only

A



Handwritten signature/initials

Transfer Duty Declaration

TDREP

Reference Details

Transfer Duty Reference Number: TDE02F5A07

Details	
Details of Seller / Transferor / Firms Share Company	
Surname / Registered Name: BADEGHORET	Full Name: ANOBE
ID Number: 5910030102080	Date of Birth (CCYYMMDD): 1969-10-08
Company / CC / Trust Reg No.	Marital Status: M.O.C OF PROPERTY
Marital Notes if applicable: South Africa	Spouse Initials:
Details of Purchaser / Transferee	
Full Name: PIETER VISSER TRUST	Surname / Registered Name: PIETER VISSER TRUST
Company / CC / Trust Reg No.: 199102001	Marital Status if applicable:
Details of the Property	
Date of Transaction / Acquisition (CCYYMMDD): 2018-11-21	
Total Fair Value: R 2200000.00	Total Consideration: R 2200000.00
Calculation of Duty and Penalty / Interest	
Transfer Duty Payable on Natural Person: R 2200000.00	
Property Description	
1 REMAINDER PORTION 3 OF THE FARM NUMBER 191, IN THE MUNICIPALITY AND DIVISION OF GEORGE, PROVINCE OF THE WESTERN CAPE, AN EXTENT 9,0516 (NINE THOUSAND ZERO FIVE ONE SIX) HECTARES	

Receipt	
Receipt Details	
Transfer Duty Reference Number: TDE02F5A07	Receipt No.: 230621953
Receipt Amount: R 76500.00	

Declaration by Conveyancer / Attorney	
<p>I certify that this is a true copy of the transfer duty declaration / receipt / exemption certificate drawn from the SARS eFiling site, which will be retained by me for 5 years from the date of registration of transfer.</p>	<p><i>Handwritten signature: Sharon Prinsloo</i></p> <p>Please ensure you sign over two (2) lines of 'X's above</p>
<p>CCYYMMDD: 20181012</p>	<p>For enquiries go to: www.sars.gov.za or call 0800 00 SARS (077)</p>



GEORGE LOCAL MUNICIPALITY

CERTIFICATE IN TERMS OF SECTION 118 OF THE LOCAL GOVERNMENT: MUNICIPAL SYSTEMS ACT, 2000 (ACT No. 32 OF 2000) (AS PRESCRIBED IN TERMS OF SECTION 120 OF ACT No. 32 OF 2000)

ISSUED BY GEORGE LOCAL MUNICIPALITY

In terms of section 118 of the Local Government: Municipal Systems Act, 2000 (Act No. 32 of 2000), it is hereby certified that all amounts that became due to George Local Municipality in connection with the undermentioned property situated within that municipality for municipal services fees, surcharges on fees, property rates and other municipal taxes, levies and duties during the two years preceding the date of application for this certificate have been fully paid.

DESCRIPTION OF PROPERTY (see definition of property in section 1 of Act 32 of 2000)

21 Digit Code for Municipal Reference Number: C0270000000001910003
Serven: 191
Portion: 1
Extension: FARM 191
Zoning: RESIDENTIAL
Registration division / Administrative District: GEORGE RD
Suburb:
Town: GEORGE RD
Sectional Title unit number:
Exclusive use area and number as referred to on the registered plan:
Real right:
Scheme registration number:
Sectional Title Scheme Name:
Registered owner: ANDRÉ BADENHORST (S 10030162080)
Name and Identity, Registration Number of all purchaser/s: PIETER VISSER TRUST (19919/2001)

This Certificate is valid until: 18/03/2019
Given under my hand at GEORGE on 18/01/2019

Digital signed by George Municipality
Signee: Miquette Sass
Sign date: 18/01/2019 02:24:59.143 PM
Expiration date: 04/04/2020 10:09:15 AM

MUNICIPAL MANAGER
George Local Municipality

Date issued: 18/01/2019
Authorized Officer: Miquette Sass

Certificate By Conveyancer: SHARON PRINSLOO (Full name and surname) hereby certify that this is a print-out of a data message in respect of the original clearance certificate electronically issued by the George Local Municipality

Conveyancer: [Signature] Date: 21/01/2019

TRACK NUMBER : 80687991204

BLACK-BOOKING ENCLURY ON NAME - BADENHORST ANDRE
ID NUMBER - 5918630162888
BIRTH DATE - 19591003
MARRITAL STATUS - MARRIED OUT
MARRIED NAME - KOCH
TYPE OF PERSON - PRIVATE PERSON

PERSON NAME AND ID

CONTRACTS/INTERDICTIONS

NOTED ON SCAN/RECORD REF

BADENHORST ANDRE

5918630162888

1959/10/03

1992 0216 2212

** PLEASE NOTE : THE INFORMATION APPEARING ON THIS PRINTOUT IS FURNISHED FOR PURPOSES OF INFORMATION ONLY.
FOR MORE DETAILED INFORMATION, PLEASE REFER TO THE REGISTERED SOURCE DOCUMENTS.

*** END OF REPORT ***



TRACK NUMBER : 8987991204

PROPERTY DETAILS: PRINT FOR PORTION 3 (R/E)
FARM NO 191
REG DIV (TRICE RD)

PROVINCE WESTERN CAPE
PREV DESCRIPTION
DIAGRAM DEED NO T22778/1948
EXTENT 9.8516 H
CLEARANCE QUATERQUA DC
FARM NAME FARM 191

NO INTERDICTION

DOCUMENTS
FARM GE 191/3

OWNER DETAILS

FULL NAME & SHARE
BADENHORST ANDRE

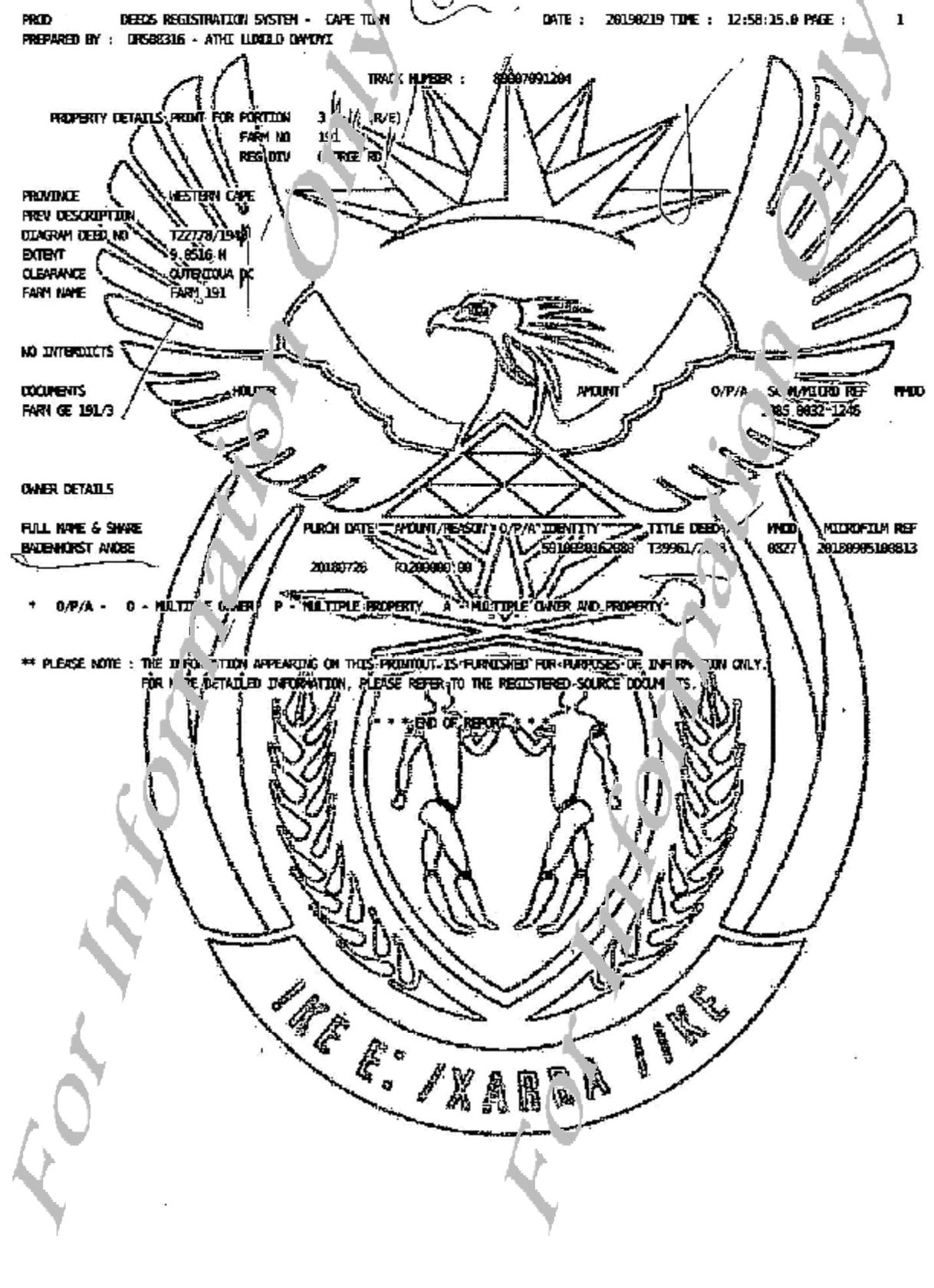
PURCH DATE	AMOUNT/REASON	O/P/A	IDENTITY	TITLE DEED	PROD	MICROFILM REF
20180726	R2200000.00		5010220162883	T39961/2018	8327	20180905100813

* O/P/A - O - MULTIPLE OWNER P - MULTIPLE PROPERTY A - MULTIPLE OWNER AND PROPERTY

** PLEASE NOTE : THE INFORMATION APPEARING ON THIS PRINTOUT IS FURNISHED FOR PURPOSES OF INFORMATION ONLY.
FOR MORE DETAILED INFORMATION, PLEASE REFER TO THE REGISTERED SOURCE DOCUMENTS.

*** END OF REPORT ***

IKHE E: IXABWA IKHE



ANNEXURE F:

SG Diagram No. 6155/48

SUB-DIVISIONAL DIAGRAM,
Sect. 24 (b), Act No. 8 of 1927.

OFFICE COPY

6155/48

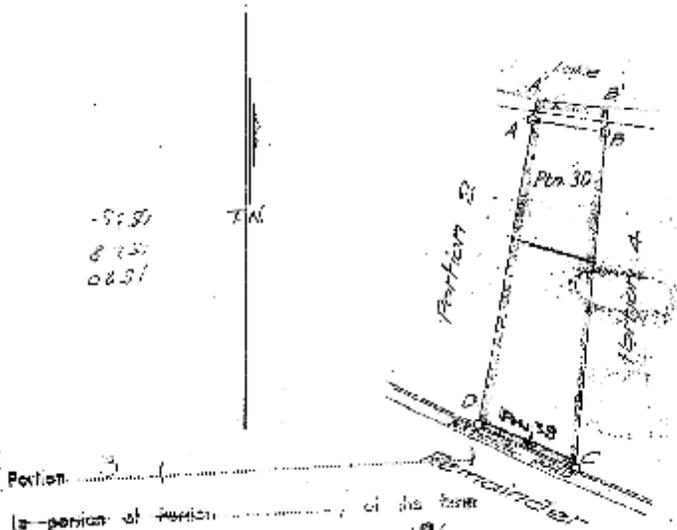
SIDES	Cape	Feet	ANGLES OF DIRECTION	SYSTEM 19 25 th CO-ORDINATES	
				y	x
AB	592.5	279 37 40 A	0 0	1100000.0	0
BC	2511.6	5 16 2 B	+ 94357.1	+ 17227.1	✓
CD	742.2	116 2 10 C	+ 93770.7	+ 10111.3	✓
DA	2292.6	180 1 20 D	+ 93999.8	+ 12612.4	✓
AA'	150.0	180 1 50 A'	+ 24666.7	+ 12286.6	✓
BB'	188.0	185 12 0 B'			

S.G. No.

Approved

W. G. G. G. G.

Surveyor-General,
9 - AUG 1948

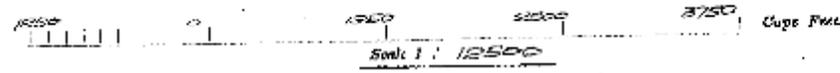


Portion 3
is portion of portion of the farm
No. 19/

GEORGE

Description of BEACONS:

- A = Planted stone 18" x 9" x 8" & 24" above ground ✓
- B = Planted stone 22" x 10" x 6" & 16" " " ✓
- C = Planted stone 28" x 15" x 6" & 12" " " ✓
- D = Planted stone 32" x 9" x 6" & 12" " " ✓



The figure A' margin of Lake B'C.D.A'
represents 17.6382 margin of land being
Portion 3 of the farm Lot No 42

situate in the Division of George, Province of Cape of Good Hope.
Surveyed in April 1948 by me

R. E. Dumbarton
Land Surveyor.

This diagram is annexed to O.T.
No. 23778
dat. 6-10-48

The original diagram is
No. 26/1948 annexed to
the Geog. P. 14-B

S.G. File No. 5 10/5
S.R. No. E. 135/48
Geo. P. 2-24.5
Gen. Div. 34

Registrar of Deeds.

FOR ENCLOSURES
SEE BACK OF INSTRUMENT
1948/2/3

Obiect, Buchnummer

SECRET RECORD	DATE	NO.	NO.	NO.	NO.	INITIALED	REMARKS
F. 157/82	4/23/82		Pactica 30	5, 7758	8561/83	<input checked="" type="checkbox"/>	
E1212/06	3/22/86	06	Partim 38	2802 m 7	86571/87	29	

ANNEXURE G:

Conveyancer's Certificate

CONVEYANCER'S CERTIFICATE

I, the undersigned

VERA VIVIEN REYNOLDS (LPCM 96350),
Conveyancer practising as such at VVR Attorneys Inc, 102 Merriman Street, George

hereby wish to certify that a search was conducted in the Deeds Registry, Cape Town regarding the following property (including both current and earlier title deeds / pivot deeds / deeds of transfer):

**Remainder of Portion 3 of Farm 191 George RD, Province of the Western Cape
Held by Deed of Transfer T 7168/2019**

in respect of which it was found that there are **no restrictive conditions** registered against such property prohibiting it from being utilised / developed for the following purposes (as elaborated on in more detail in the accompanying application):

Consent Use for a Sand Quarry on Agricultural land

LIST OF RESTRICTIVE TITLE CONDITIONS (if applicable)

Deed no	Clause no	Description
N/A	N/A	N/A

PROCESS BY WHICH RELEVANT CONDITIONS WILL BE ADDRESSED

(please tick appropriate box)

Removal/ suspension/ amendment of restrictions in terms of Act 84/1967 (submit separate application)	Notarial Deed of Cancellation (submit copy of signed agreement)	Consent (submit copy of signed consent)	Expungement by means of 'rule nisi' application to High Court (submit copy of Court order)
--	---	---	--

Signed at GEORGE on this 19th day of NOVEMBER 2025

Signature

VERA VIVIEN REYNOLDS
VVR ATTORNEYS INC
102 MERRIMAN STREET
GEORGE

ANNEXURE H:

Bond Holder consent



Marika Vreken Town Planners
Email: info@vreken.co.za

22 JANUARY 2026

Your ref: Bianca Du Toit

Our ref: K Malema

Dear Sir/Madam

HOME LOAN IN THE NAME OF : Pieter Visser Trust
ACCOUNT NUMBER : 8003757712401
SECURITY DESCRIPTION : RE of Ptn 3 of Farm NO 191 George Rd

We refer to your request dated 11 December 2025 and advise as follows:

We have no objection to the Consent use for a “quarry” on the Agricultural zoned land, in terms of Section 15(2)(o) of the George Municipality’s Land Use Planning Bylaw (2023), and Permanent Departure for the relaxation of the eastern lateral building line from 20m to 12,7m in terms of Section 15(2)(b) of the George Municipality By-Law on Municipal Land Use Planning (2023) to allow a site office for the proposed quarry, subject to municipal approval.

If you have any further questions regarding this matter, kindly contact Theona Hilder on 010 234 7719.

Yours faithfully

K. Malema
KOKETSO MALEMA
Administrator
Administrations
Gauteng Home Loans

cc

Home Loans | Gauteng

16 Constantia Boulevard Constantia Kloof Roodepoort 1709 PO Box 1144 Johannesburg 2000 South Africa
T 0860 555 111 F 011 495 9161

Directors: AD Mminele (Chairperson) JP Quinn (Chief Executive) HR Brody (Lead Independent Director) BA Dames MH Davis (Chief Financial Officer) NP Dongwana Dr MA Hermanus
EM Kruger P Langeni RAG Leith L Makalima MC Nkuhlu (Chief Operating Officer) Dr TM Nombembe S Subramoney
Company Secretary: J Katzin 15.07.2024.

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ANNEXURE I:

Traffic Impact Assessment



TRAFFIC IMPACT ASSESSMENT IN RESPECT OF THE PROPOSED KLEINKRANTZ SAND QUARRY ON REMAINDER OF PORTION 3 OF FARM 191, GEORGE, WESTERN CAPE

PVVK MANAGEMENT SERVICES CC

AUGUST 2024

K&T PROJECT REFERENCE: 17159R

REVISION 0



Details of this report

Client Name	PVVK Management Services CC
Document Title	Traffic Impact Assessment
K&T Project Reference	17159R - Kleinkrantz Sand Quarry TIA
File Name	17159R-Kleinkrantz Sand Quarry TIA-Aug 2024-Rev 0 (Draft)
Prepared by	Mr B A Phillips / Mr H Cassoo

Report Revision Record

Revision	Date	Description
0	19/08/2024	Draft for Comment

This report has been prepared by Kantey & Templer (Pty) Ltd, with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

For and on behalf of Kantey & Templer (Pty) Ltd	
Prepared by: <u>H Cassoo</u>	Approved by: <u>B A Phillips</u>
ECSA Reg. No.: <u>2020300726</u>	ECSA Reg. No.: <u>200770081</u>
Signed:	Signed:
Position: <u>Project Manager</u>	Position: <u>Consultant</u>
Date: <u>19/08/2024</u>	Date: <u>19/08/2024</u>

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1. INTRODUCTION

This chapter discusses the purpose of the traffic impact statement, identifies the study area and criteria used to identify significant project impacts.

Kantey & Templer was appointed by PVVK Management Services CC (herein referred to as “the Client”) to prepare a Traffic Impact Assessment (TIA) in respect of the proposed Kleinkrantz Sand Quarry to be situated on Remainder of Portion 3 of Farm 191, in George, Western Cape (herein referred to as “the site”). Refer to Figure 1 for the site locality plan.

This TIA forms part of an application lodged with the National Department of Forestry, Fisheries and the Environment (DFFE) as the old National Lakes Area is deemed to be a Protected Area. The specific objectives of the report are to:

- (i) Describe the extent of the proposed development.
- (ii) Assess the existing traffic operations on the road network in the vicinity of the site.
- (iii) Predict the extent of the additional traffic generated by the proposed development and estimate the distribution of that new traffic.
- (iv) Evaluate the potential traffic impact of the proposed and latent developments on the surrounding road network.
- (v) Evaluate the access to the site.
- (vi) Make recommendations for improvements to the existing road network affected by the additional site traffic.

Figure 1: Site locality plan



2. LAND USE & DEVELOPMENT PARTICULARS

The site is located on the Remainder of Portion 3 of Farm 191 in the Wilderness Lakes Area (Lagvlei Dunes area) between Wilderness and Sedgfield and is situated along the National Road 2 Section 7 (N2-7) near km marker 46.0.

The site is currently zoned Agriculture Zone 1 and measures ± 9.05 hectares in extent. Mining is not a primary land use in terms of the Agriculture Zone 1 zoning and thus, the proposed sand quarry will be a consent use thereof. The proposed extent of the mining activities is ± 5.37 hectares. The estimated duration of the proposed mining activities is approximately 20 years. The Langvlei Dunes area contains suitable resources for building sand and it is an established sand mining area.

Environmental Authorisation for the proposed sand mine has already been granted by the Department of Mineral Resources and Energy (DMRE).

The proposed mining and associated activities are summarised as follows:

- Establishment of site infrastructure including the access road, site office (two containers) and a weighbridge. One container will be a store and the other will be an office / control room. Solar power will be used.
- The establishment of a visual berm on the southern side of the mining area to reduce the visual impact from the N2 National Road.
- Search and rescue of indigenous plants and protected trees from each mining area before sand mining starts.
- Progressive removal of alien vegetation from the site as sand mining progresses.
- Excavating sand and putting it through a mobile screening plant to remove oversize material (e.g. clay) or roots and branches.
- Loading of sand into trucks.
- Recording the mass of sand loaded onto customer trucks using a weighbridge and the processing of invoices.
- Profiling of slopes and the mining floor using overburden and oversize material recovered from the screening plant.
- Replacing topsoil, stabilising the soil and revegetation of the mined areas.
- Concurrent mining and rehabilitation is planned with no more than one mining phase being open at a time.
- Clearance of all remaining alien trees in the buffer areas.
- When mining has been completed, the site office, weighbridge and earth moving equipment will be removed.

The Mining & Rehabilitation and Closure Plans are contained in Appendix A.

During the construction/site establishment phase, it is anticipated that equipment such as a bulldozer, excavator and shipping containers will be transported to the site on a low bed with a maximum of 5 truck loads for the establishment and 5 truck loads for de-establishment. Unforeseen truck loads may occur, but it is anticipated that this would not exceed 5 loads per week for the duration of the construction phase.

Once the sand mine is operational, it is anticipated that only 5 permanent workers will be on-site consisting of the following:

- 2 Machine (front end loader or excavator) operators (a bulldozer may be brought to site periodically for specific tasks such as clearing/stockpiling and replacing topsoil)
- 1 Mobile Screen operator (to screen out roots, & any other oversized material from the sand)
- 1 Weighbridge operator
- 1 Mine manager

There will also be a part-time administrative clerk stationed off-site. The approved operating hours for the sand mine are 08:00 – 17:00 (Monday to Friday) and 08:00 – 13:00 (Saturday). The sand mine will be closed during the annual builders holiday (15 December to the second week of January).

Rehabilitation and/or landscape contractors (part-time workers) responsible for clearing alien vegetation, search & rescue of certain indigenous plants & revegetation of mined areas will be on-site periodically to undertake specific tasks.

Both permanent and part-time workers will be transported to and from the site in a light delivery van or minibus (e.g. Toyota Quantum).

The highest volume of site traffic will originate from 15m³ tipper trucks collecting sand from the mine. It is estimated that the number of truckloads collecting sand will not exceed 24 loads per day during the week.

3. ROAD NETWORK

The site is situated along the N2 (Section 7) near km marker 46.0. Access to the site is proposed via the existing farm access at Km 45.87 (also referred to as Access 47 in the Access Management Plan (AMP) prepared by Qunu Consulting Engineers). The N2-7 extends for approximately 54km between Groot Brakrivier and Sedgfield. The operating speed of the N2 past the is 100km/h.

SANRAL commenced with upgrades to the N2-7 between George and Wilderness (between Kraibosch and Touw River) at the end of February 2024. Major improvements include the construction of new traffic circles at the Victoria Bay and George Road, widening of the N2 to a dual carriageway over the full length, construction of frontage roads, erosion protection at Kaaimans Galley and repairs to structures and critical slope stabilisation in Kaaimans River Pass. Anticipated completion is set for April 2026.

Similarly, SANRAL are due to commence with the planning and design of the upgrades of the N2-7 (between Touw River and Swartvlei). The appointment of consultants is likely to take place before the end of 2024. The details are discussed in the subsequent Section 9 dealing with access to the site, as this will have a direct bearing on the project.

4. EXISTING TRAFFIC CONDITIONS

Background traffic information for N2-7 was obtained from the Western Cape Government Road Network Information System (RNIS) at the traffic count station located at Km 43.29 (Die Vleie Road/Divisional Road 1614).

The last traffic counts were conducted on Wednesday, 06 September 2023. The calculated growth rate at the traffic count station is 3%/per annum which was used to project the the latest traffic count data to depict 2024 traffic conditions.

Table 1: RNIS Traffic Count Data

Station No.	2604B
Road No.	NR00207
Km Distance	43.29
Count Date	06/09/2023
Hours Counted	18 hours
Total AADT	11660 vehicles
Projected AADT (3% growth)	12010 vehicles
Assumed East/West Directional Split	50:50

More detailed summaries of the traffic count data and growth rates at the RNIS traffic counting station are contained in Appendix B.

The following peak hours were derived from the traffic count data:

- AM Peak Hour: 09:00 – 10:00: 713 light vehicles, 103 heavy vehicles, 0 taxis, 0 buses
- PM Peak Hour: 16:00 – 17:00: 764 light vehicles, 86 heavy vehicles, 5 taxis, 1 bus

5. TRIP GENERATION

The trip generation requires an estimation of the additional traffic to be generated by the proposed development typically from trip rates contained in the COTO TMH17 Trip Data Manual. However, the TMH17 does not provide trip rates for mining operations. Therefore, the additional traffic was calculated using first principles.

5.1 OPERATIONAL PHASE

As previously discussed, the highest volume of site traffic during mining operations would originate from 15m³ tipper (9 – 10m long) trucks collecting sand from the mine. It is estimated that the number of truckloads collecting sand will not exceed 24 loads/day which is equivalent to 3 loads/hour on average over an 8-hour business day. However, by adopting a conservative approach, the AM and PM peak hours will be evaluated with twice the amount of the average hourly load i.e. 6 loads/hour. The trip generation is estimated in Table 2.

Table 2: Kleinkrantz Sand Quarry Trip Generation

Kleinkrantz Sand Quarry		AM Peak Hour		PM Peak Hour	
		IN	OUT	IN	OUT
Light Vehicles (LV)	Volumes	3	1	1	3
	% Split	75%	25%	25%	75%
Equivalent Vehicle Unit (EVU) = LV*1		3	1	1	3
Trucks (HV)	Volumes	5	1	1	5
	% Split	17%	83%	17%	83%
Equivalent Vehicle Unit (EVU) = HV*3		15	3	3	15
Total EVU	Volumes	18	4	4	18
	% Split	82%	18%	18%	82%

Based on the above table, the proposed development can be expected to generate an additional 22 EVU trips on the surrounding road network during the AM and PM peak hours.

It must be noted that in terms of the COTO standards, a TIA is typically only required when a development generates more than 50 additional trips on the surrounding road network during the AM and PM peak hours.

Therefore, the proposed sand mine, with its low trip generation is expected to have a low impact on the traffic operations of the N2.

6. SITE TRAFFIC DISTRIBUTION

Traffic that is expected to be generated by a development must be distributed and assigned to the road network so that the impact of the proposed project on the roadway links and intersections within the study area can be analysed.

The trip distribution is based on the anticipated travel patterns in and out of the site and for the purpose of this TIA, it is assumed that 70% of the site traffic would originate from west of the site (towards George) and 30% from the east (towards Knysna). The trip distribution patterns and site traffic assignment are illustrated in Figures C2 & C3 in Appendix C.

7. POTENTIAL IMPACT

The traffic operations were analysed using Signalised and Unsignalised Intersection Design and Research Aid software package¹ (SIDRA). The software package determines the existing and future operational Levels of Service (LOS) and expected average delays at the key intersections in the study area with the additional traffic from the proposed development.

ANALYSIS METHODOLOGY

Level of Service

Traffic operations at intersections are typically described in terms of “Level of Service” (LOS). LOS is a qualitative measure of the effect of several factors on traffic operating conditions, including speed, travel time, traffic interruptions, freedom to manoeuvre, safety, driving comfort, and convenience. It is generally measured quantitatively in terms of vehicular delay and described using a scale that ranges from LOS A to F, with LOS A representing essentially free-flow conditions and LOS F indicating over-capacity conditions with substantial congestion and delay.

Table 3 summarises the relationships between the average control delay per vehicle and LOS for signalised intersections, roundabouts and stop and yield controls.

For this study, the following scenarios were evaluated:

- **Existing** – Existing Conditions (2024)
- **Future** – Future Conditions “Five Year Horizon” (2029) – *including latent demand, excluding site traffic*
- **Future** – Future Conditions “Five Year Horizon” (2029) – *including site traffic*

¹ SIDRA Version 9 Software, SidraSolutions, Australia.

A growth rate of 3% per annum was used to estimate the increase in background traffic on the N2 for the future 2029-year traffic scenarios. This is to account growth of background traffic which also affects the surrounding road network.

Table 3: Level-of-Service definitions based on delay (HCM method)

Level of Service		Control delay per vehicle in seconds (d) (including geometric delay)	
		Signals and Roundabouts	Stop Signs and Give Way (Yield) Signs
A	Good progression, few stops, short cycle lengths	$d \leq 10$	$d \leq 10$
B	Good progression and/or short cycle lengths, more vehicle stops	$10 < d \leq 20$	$10 < d \leq 15$
C	Fair progression, significant proportion of vehicles must stop	$20 < d \leq 35$	$15 < d \leq 25$
D	Congestion becomes noticeable; longer delays, high v/c ratio	$35 < d \leq 55$	$25 < d \leq 35$
E	At or beyond acceptable delay, poor progression, long queues	$55 < d \leq 80$	$35 < d \leq 50$
F	Unacceptable to drivers. Arrival volumes greater than discharge capacity, unstable unpredictable flows	$80 < d$	$50 < d$

The traffic operations at the key intersections are summarised in Tables 4 & 5 in terms of LOS, Delay and V/C ratios (measures of effectiveness). More detailed Movement and LOS summaries are contained in Appendix D.

The findings of the SIDRA analysis indicate that Access 47 has sufficient capacity to accommodate the site traffic during the future 2029-year scenario. Therefore, the proposed sand mine is expected to have a low impact on the traffic operations of the N2 freeway.

Table 4: AM peak hour traffic operations at N2 Section 7 / Farm Access Km 45.87 (Access 47)

Approach	Movement	Intersection Type: Unsignalised										
		Existing 2024 Scenario				Future 2029 Scenario						
		Background traffic		Excluding site traffic		Excluding site traffic		Including site traffic				
v/c	Ave. Delay (seconds)	LOS	LOS	v/c	Ave. Delay (seconds)	LOS	LOS	v/c	Ave. Delay (seconds)	LOS	LOS	
East: N2 Section 7	Through	0.225	0.0	LOS A	LOS A	0.261	0.0	LOS A	LOS A	0.261	0.0	LOS A
	Right	0.001	6.9	LOS A	LOS A	0.005	7.4	LOS A	LOS A	0.010	7.5	LOS A
	Approach	0.225	0.0	NA	NA	0.261	0.1	NA	NA	0.261	0.2	NA
North: Access 47	Left	0.004	8.7	LOS A	LOS A	0.028	9.2	LOS A	LOS A	0.044	9.3	LOS A
	Right	0.004	16.4	LOS C	LOS C	0.028	20.9	LOS C	LOS C	0.044	21.5	LOS C
	Approach	0.004	12.5	LOS B	LOS C	0.028	15.1	LOS C	LOS C	0.044	16.2	LOS C
West: N2 Section 7	Left	0.225	7.8	LOS A	LOS A	0.263	7.8	LOS A	LOS A	0.270	7.8	LOS A
	Through	0.225	0.0	LOS A	LOS A	0.263	0.0	LOS A	LOS A	0.270	0.0	LOS A
	Approach	0.225	0.0	NA	NA	0.263	0.1	NA	NA	0.270	0.3	NA
All Vehicles		0.225	0.1	NA	NA	0.263	0.2	NA	NA	0.270	0.5	NA

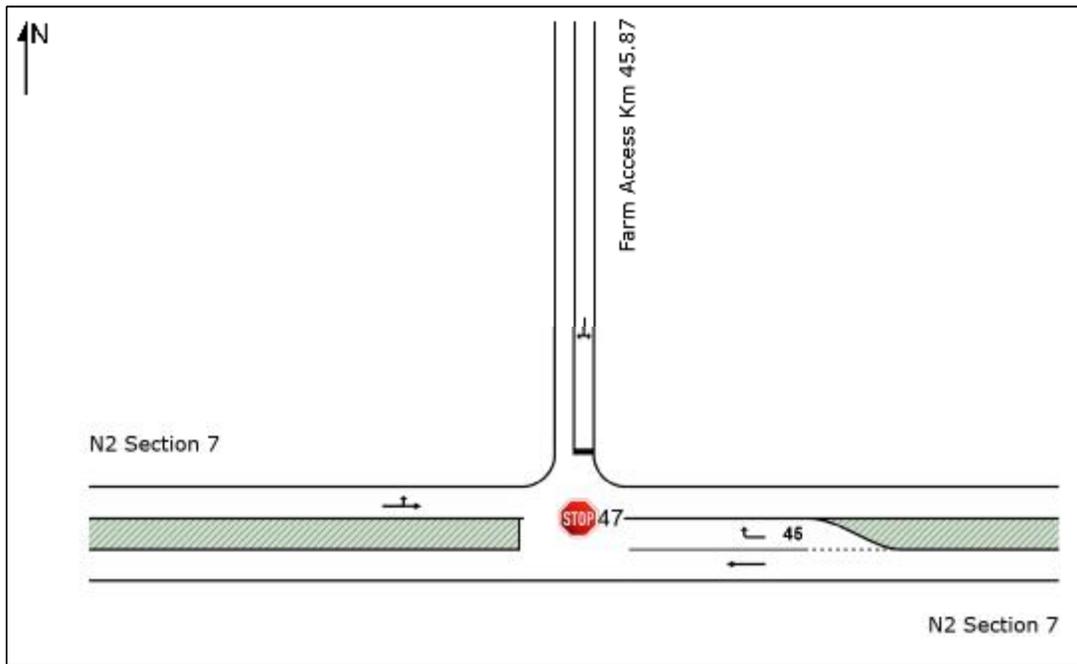
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Table 5: PM peak hour traffic operations at N2 Section 7 / Farm Access Km 45.87 (Access 47)

Approach	Movement	Intersection Type: Unsignalised								
		Existing 2024 Scenario				Future 2029 Scenario				
		Background traffic		Excluding site traffic		Background traffic		Including site traffic		
v/c	Ave. Delay (seconds)	LOS	v/c	Ave. Delay (seconds)	LOS	v/c	Ave. Delay (seconds)	LOS		
East: N2 Section 7	Through	0.233	0.0	LOS A	0.270	0.0	LOS A	0.270	0.0	LOS A
	Right	0.001	7.0	LOS A	0.005	7.5	LOS A	0.006	7.5	LOS A
	Approach	0.233	0.0	NA	0.270	0.1	NA	0.270	0.1	NA
North: Access 47	Left	0.005	8.8	LOS A	0.030	9.4	LOS A	0.099	9.5	LOS A
	Right	0.005	17.2	LOS C	0.030	22.3	LOS C	0.099	23.0	LOS C
	Approach	0.005	13.0	LOS B	0.030	15.8	LOS C	0.099	18.2	LOS C
West: N2 Section 7	Left	0.233	7.8	LOS A	0.272	7.8	LOS A	0.274	7.8	LOS A
	Through	0.233	0.0	LOS A	0.272	0.0	LOS A	0.274	0.0	LOS A
	Approach	0.233	0.0	NA	0.272	0.1	NA	0.274	0.1	NA
All Vehicles		0.233	0.1	NA	0.272	0.2	NA	0.274	0.6	NA

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Figure 2: Existing intersection geometry of N2 Section 7 / Farm Access Km 45.87 (Access 47)



8. PROPOSED IMPROVEMENTS

The quantum of traffic to be generated by the proposed sand mine during peak hours is fairly low in relation to the background traffic network and is unlikely to have any significant impact on prevailing traffic operations. This will result in a fairly low impact on the traffic operations of the N2 Freeway.

9. ACCESS TO SITE

There is an existing farm gate to the site from Access 47 situated on the left-hand side (LHS) of the N2 at km 45.87. Access 47 primarily serves the farm access to the property west of the site, namely Portion 2 of Farm 191. This is a minor farm access and has no formal access status, insofar as it only serves one farm portion and is therefore not a side road.

Figure 3: Existing site access



The Client is pursuant on formalising an access road to the site at this location, however, this access is unlikely to meet with SANRAL approval as the location is not ideal in terms of consolidation of accesses in accordance with the principles or arterial and access management. There are better locations for consolidation of access within the straight section between the two horizontal curves, for example at km 46.10 directly opposite the applicant's site and would be preferable.

Qunu AMP report (2019)

Qunu Consulting Engineers who prepared the AMP for the N2 Sections 7 to 8 from Kraaibosch to Sout River, subsequently prepared a report (dated 14 October 2019) where they evaluated access to the site. According to the report, the closest approved access on the N2 is the business access to Unbuntu Retreat (Heritage Bakery) at km 46.10, also referred to as Access 48. SANRAL will not normally approve another business access within 500m of an existing approved access – Access 47 is situated 230m west of Access 48 and is therefore unsuitable. Refer to Appendix E for the report prepared by Qunu Consulting Engineers.

RECOMMENDED ACCESS PROPOSAL

The recommendation would be to have access to the site opposite Access 48 at km 46.10. This would present an opportunity to close and consolidate the existing accesses on the left-hand side of the N2 to the east (Access 49) and west (Access 47) of the site on the left-hand side at km 46.10. This would require the design and construction of a new service road parallel to the N2 with a dedicated right turn lane serving Portions 2, 3 (applicant's site), 4 and 5.

MEETING WITH SANRAL

Discussions with Messrs SANRAL held 13 August 2024 indicate that there is a project likely to commence in the next year that will look at upgrading the section of the N2-7 past the site. The project may take the form of a dualling and accesses would be reviewed with consolidation and access management principles of safety, access and mobility applied. Therefore no certainty can be placed on access or arterial management until such time as the study is complete. It would still be several years until such roadworks would be implemented and complete.

The merits of the proposed full access at Access 48 (km 46.10) were debated and other options were mooted including an access further east. It was, however, pointed out that the consolidation of accesses and provision of service roads at Access 48 (km 46.10) and discussions with neighbouring farm owners and other mining operators would be required.

Approval would be subject to neighbours agreeing to the consolidated access and SANRAL who would in any event reserve the right to refuse access in this location and specify a different access in the future. The client would have to accept this risk in applying for access and await the outcome of the SANRAL planning and design process.

Figure 4: Accesses on N2-7 surrounding the site



10. CONCLUSIONS AND RECOMMENDATIONS

It can be concluded that:

1. The existing traffic in the vicinity of the site is in the order of 11,660 vpd and in the order of 816 vph and 860 vpd in the AM and PM peak hours respectively. This is a significant volume of traffic for a single lane undivided arterial and is typical of the national route N2-7.
2. The high speed mobility arterial lends itself to the consolidation of access points in order to maintain the established arterial management principles subscribed to by the road authority, namely SANRAL.
3. The traffic generated by the proposed sand quarry is very light, in the order of 11 trips per hour in the peak hour and the analysis applied a conservative approach and doubled this to 22 trips in the peak hour.
4. The traffic impacts of the proposed development trip generation will have no significant impact on traffic and safety conditions on the N2-7. This is likely to remain as such in the event of consolidation and latent development rights.
5. The site currently has no approved access other than the existing farm gate in the vicinity of Access 47 (km 45.87). This location for access is not desirable and would not be supported by SANRAL.
6. The consolidation of accesses is best located in the vicinity of the existing approved Access 48 (km 46.10) directly opposite the site. This is the ideal location that serves an existing road to the south and can serve several properties to the north and adjacent to the site.
7. The intersection at this location would change from a T-intersection to a fourway intersection and should ideally be incorporated into the design of the upgrade of the N2-7 to be undertaken by SANRAL.
8. The intersection would continue to provide access to several farm portions and subdivisions to the south of the N2-7 via the side road and to the north of the N2-7 via service roads.
9. The consolidation of accesses at the abovementioned location will involve discussions by the client body with the adjacent farm owners and commercial concerns.

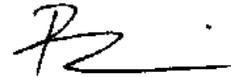
We therefore recommend that:

1. The application should be approved by the Department of Forestry, Fisheries and the Environment and the relevant Road Authority (SANRAL) as the proposed sand mine was found to have no significant impact on traffic operations on the N2.
2. The access to the site should be at the proposed consolidation point of Access 48 (km 46.10) and carried forward into the planning and design of the N2-7 to be undertaken by SANRAL.



H CASSOO (PR TECH ENG)
(Pr No. 2020300726)

19 August 2024



B A PHILLIPS (PR TECH ENG)
(Pr No. 200770081)

APPENDIX A

MINING & REHABILITATION AND CLOSURE PLANS

APPENDIX B
TRAFFIC COUNT DATA

APPENDIX C

TRAFFIC SCHEMATIC DIAGRAMS

APPENDIX D

SIDRA MOVEMENT SUMMARIES

APPENDIX E

QUNU CONSULTING ACCESS REPORT

ANNEXURE J:

SANRAL comments

Reference: W11/2/3-2/7-33 Fax Number: +27 (0) 21 910 1699
Date: 11 November 2024 Direct Line: +27 (0) 21 957 4600
Email: dyerss@nra.co.za Website: www.nra.co.za



Mr B. Philips
Kantey and Templer
PO Box 3132
CAPE TOWN
8000

Dear Mr Philips,

NATIONAL ROUTE 2 SECTION 7: PROPOSED KLEINKRANTZ SAND QUARRY ON REMAINDER OF PORTION 3 OF FARM 191, GEORGE.

The Draft Traffic Impact Assessment by Kantey and Templer dated 26 August 2024 refers.

The South African National Roads Authority SOC Limited (SANRAL) has reviewed the draft Traffic Impact Assessment and have the noted the following:

- A draft Traffic Impact Assessment was submitted for review.
- Access is requested for a proposed sand mine.
- The property is currently zoned Agriculture 1 and a consent use application is required for the sand mining activity.
- There is currently no direct access from the N2 to the proposed sand mine quarry site.
- There is currently a mining quarry, to the East of the site, at km 46.20.
- There is an existing farm access at the neighbouring property, to the West of the site, at km 45.87. It is proposed to make use of this access for the quarry.
- There is an access at km 46.10 to the south of the site.
- A meeting was held on 13 August 2024, where the access location for this project was discussed with SANRAL. It was relayed that SANRAL would be embarking on a project to review the design of this section of the N2 in the near future. However, it was confirmed that an addition of a new access for a sand mine quarry for this section of the N2 is not ideal and that the consolidation of existing accesses would have to be considered.

SANRAL does not recommend the approval of the existing farm access for the purposes of a sand mine quarry, alternative access to the property must be provided.

Should the developer want to proceed with an access to the quarry via the N2, it is recommended that access at km 46.20 and km 45.87, be consolidated and an access be identified that can accommodate

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various properties, be considered. Accesses within 1 km radius of the proposed site must be evaluated. Please note that all costs related to such a proposal would be for the developer's account.

Furthermore, SANRAL may in future implement its own road design, improvements on this section of the N2. In such an instance, SANRAL will not be liable for any costs incurred, or losses, by your client.

Yours Sincerely

A handwritten signature in black ink, appearing to read 'R. Cable', is positioned above a dotted line.

RANDALL CABLE
REGIONAL MANAGER

28066821

ANNEXURE K:

Environmental Management Plan



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

ENVIRONMENTAL IMPACT ASSESSMENT REPORT and ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND / OR THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY AN APPLICATION IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED).



DMR Reference Number: (WC) 30/5/1/2/2/ 10113MR

Type of application: Application for a mining right

Applicant: PVVK Management Services CC

Property: Remainder of Portion 3 of Farm 191, George Registration Division

Name of the mine: Kleinkrantz Sand Quarry (KSQ)

Local authority: George Municipality

Province: Western Cape

Date: 25 November 2019

IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a prospecting or mining right if among others the mining “will not result in unacceptable pollution, ecological degradation or damage to the environment”.

Unless an Environmental Authorisation can be granted following the evaluation of an Environmental Impact Assessment and an Environmental Management Programme report in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), it cannot be concluded that the said activities will not result in unacceptable pollution, ecological degradation or damage to the environment.

In terms of section 16(3)(b) of the EIA Regulations, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17 (1) (c) the competent Authority must check whether the application has taken into account any minimum requirements applicable or instructions or guidance provided by the competent authority to the submission of applications.

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or a permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.

It is furthermore an instruction that the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the applicant.

THE OBJECTIVE OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

(As described in Appendix 3 of the EIA Regulations, 2014)

The objective of the environmental impact assessment process is to, through a consultative process: -

- (a) determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;*
- (b) describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;*
- (c) identify the location of the development footprint within the preferred site based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;*
- (d) determine the:-*
 - (i) nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and*
 - (ii) degree to which these impacts:-*
 - (aa) can be reversed;*
 - (bb) may cause irreplaceable loss of resources, and*
 - (cc) can be avoided, managed or mitigated;*
- (e) identify the most ideal location for the activity within the preferred site based on the lowest level of environmental sensitivity identified during the assessment;*
- (f) identify, assess, and rank the impacts the activity will impose on the preferred location through the life of the activity;*
- (g) identify suitable measures to manage, avoid or mitigate identified impacts; and*
- (h) identify residual risks that need to be managed and monitored.*

NOTE ON THE SCOPE AND CONTENT OF ENVIRONMENTAL IMPACT ASSESSMENT REPORTS AND THE CONTENTS OF ENVIRONMENTAL MANAGEMENT PROGRAMMES

The scope and content of environmental impact assessment reports and the contents of environmental management programmes are specified in Appendix 3 and Appendix 4 of the EIA Regulations, 2014 (as amended). Where relevant, extracts from the EIA Regulations, 2014 are shown in italics below each heading in this report.

Note: The amendments of the EIA Regulations, 2014 commenced on 7 April 2017. These were published in the following government notices:

- GN R326 – Amendments to the Environmental Impact Assessment Regulations, 2014
- GN R327 – Amendment of Listing Notice 1 of 2014
- GN R325 – Amendment of Listing Notice 2 of 2014
- GN R324 – Amendment of Listing Notice 3 of 2014

EIA & EMP

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- Appendix 4:** Town Planning Report
- Appendix 5:** Environmental Awareness Handout
- Appendix 6:** A3 sized plans (hard copy report only)

PART A: ENVIRONMENTAL IMPACT ASSESSMENT REPORT

1. CONTACT PERSON & CORRESPONDENCE ADDRESS

1.1 Details of the Environmental Assessment Practitioner

ITEM	CONTACT DETAILS
Name of the EAP:	Stephen Davey
Company:	Klipberg Consulting (Pty) Ltd
Postal address:	PO Box 46, Darling, 7345
Mobile no:	082 782 3727
E-mail:	sdavey@klipberg.co.za
Web site:	www.klipberg.co.za

1.2 The expertise of the EAP, including a curriculum vitae

A summarised CV of the EAP (including qualifications and past experience) is provided below:

EDUCATION

University of Cape Town:

- M. Phil (Environmental Management), 2001
- B.Sc Honours (Geochemistry), 1984
- B.Sc (Geology), 1981

PROFESSIONAL EXPERIENCE

Klipberg Consulting (Pty) Ltd (2013 – Present)

Klipberg Consulting (Pty) Ltd was started by the EAP during 2013.

Klipberg Consulting provides geological and environmental consulting services with a focus on prospecting and mining applications.

Amathemba Environmental Management Consulting CC (2001 – 2013)

The EAP was a founder member.

Projects included:

- EIA processes for the closure of the Brackenfell Landfill Site, the construction of a Refuse Transfer Station in the Oostenberg area and the upgrading of the Bellville Wastewater Treatment Works – for the City of Cape Town.
- Sustainable Coastal Management Plans for the City of Cape Town
- EIAs and EMPs for Phosphate, Silica sand, Diamond & Heavy Mineral Prospecting Right applications.
- EIAs and EMPs for numerous Mining Right applications (sand, gravel, aggregate and clay i.e. construction materials) in the Western Cape Province.
- EIA for the Mothae Diamond project in Lesotho.

- Guest lecturer for a module in Environmental Management for Geography (Honours) students at the University of the Western Cape since 2004.

Billiton Argentina and Billiton Ecuador (1994 - 1999) - Exploration Manager

Gencor (1991 - 1993) - Regional and International Exploration

Impala Platinum and Karee Platinum Mine (1985 – 1990) - Mine Geologist and Chief Geologist

Anglovaal Exploration (1981 – 1983) – Field Geologist (Barberton)

PROFESSIONAL REGISTRATION & AFFILIATIONS

- Registered as an Environmental Assessment Practitioner (EAP) by EAPASA (Registration Number 2019/159)
- Registered as a Professional Natural Scientist - Geological Science - (Registration Number 400087/88) with the South African Council for Natural Scientific Professions (SACNASP)
- Fellow of the Geological Society of South Africa (GSSA)
- Member of the International Association for Impact Assessment (IAIASa)

2. LOCATION OF THE ACTIVITY

Full particulars of the applicant:

ITEM	CONTACT DETAILS
Name of the Company:	PVVK Management Services CC
Registration number of the Company	2003/110080/23
Tel no:	021 971 1404
Fax no:	086 762 5875
Cellular no:	082 553 3240
Contact person:	Lizel Visser
E-mail address:	waldene@tiptransresources.co.za
Postal address:	PO Box 272, Moorreesburg, 7310
Physical address:	Klipheuwel Park, Malmesbury Road (R302), Klipheuwel

Registered description of the land:

Name of the property	Remainder of Portion 3 of Farm 191
Magisterial District	George
Registration Division	George
Province	Western Cape
Extent of the property	9.0516 hectares
Extent of the mining area	5.3697 hectares
Registered land owner	Pieter Visser Trust
Title Deeds	T7168/2019
LP1 21 digit code	C02700000000019100003
Coordinates	S33° 59' 48.1" S and 22° 40' 42.0" E
Distance and direction from the nearest town	The proposed mining right area is located 9.5 km east of the Wilderness and 11.5 km west of Sedgefield

3. PLANS

The location of the site is shown in **Figure 1**, the plan of the land in **Figure 2**, the original mining layout plan in **Figure 3**, the revised mining layout plan in **Figure 4**, the mining and rehabilitation plan in **Figure 5**, the closure plan in **Figure 6** and a cross-section in **Figure 7**.

The site is located 9.5 km east of the Wilderness and 11.5 km west of Sedgefield (see **Figure 1**).

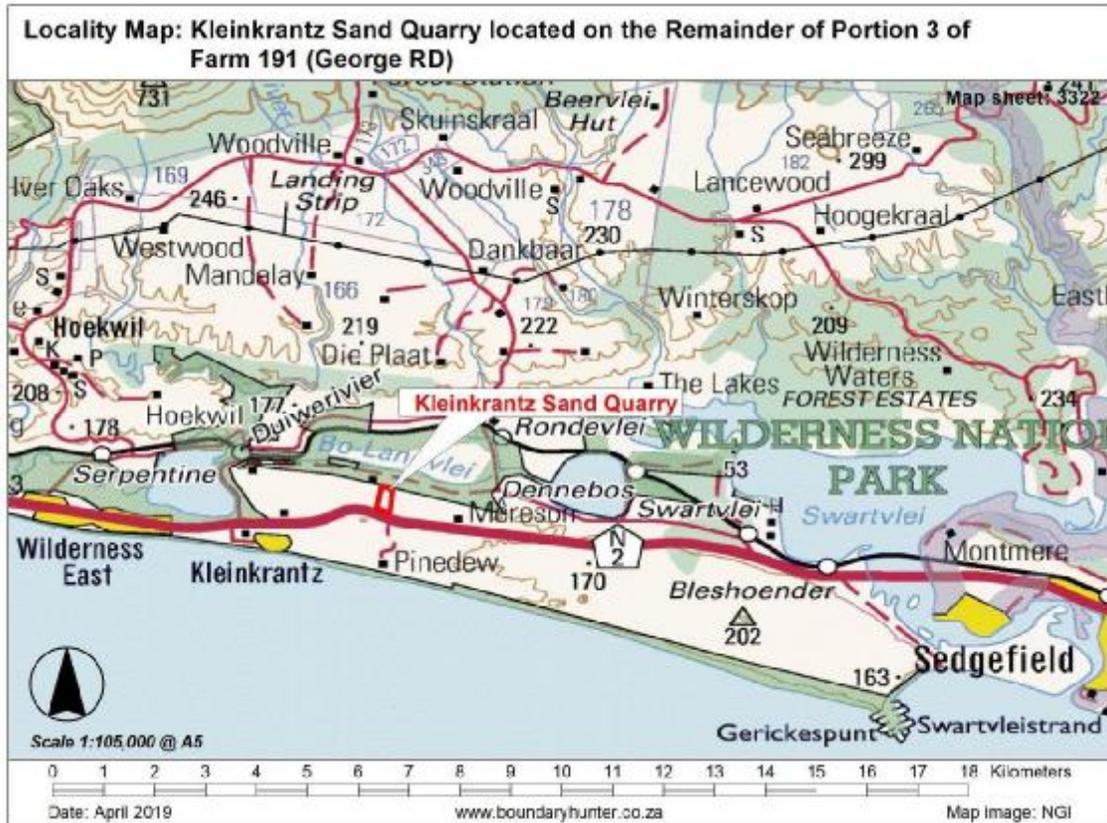


Figure 1: Locality map



Figure 2: Plan of the land

Kleinkrantz Sand Quarry: EIAR and EMPr



Figure 3: Original mining layout plan

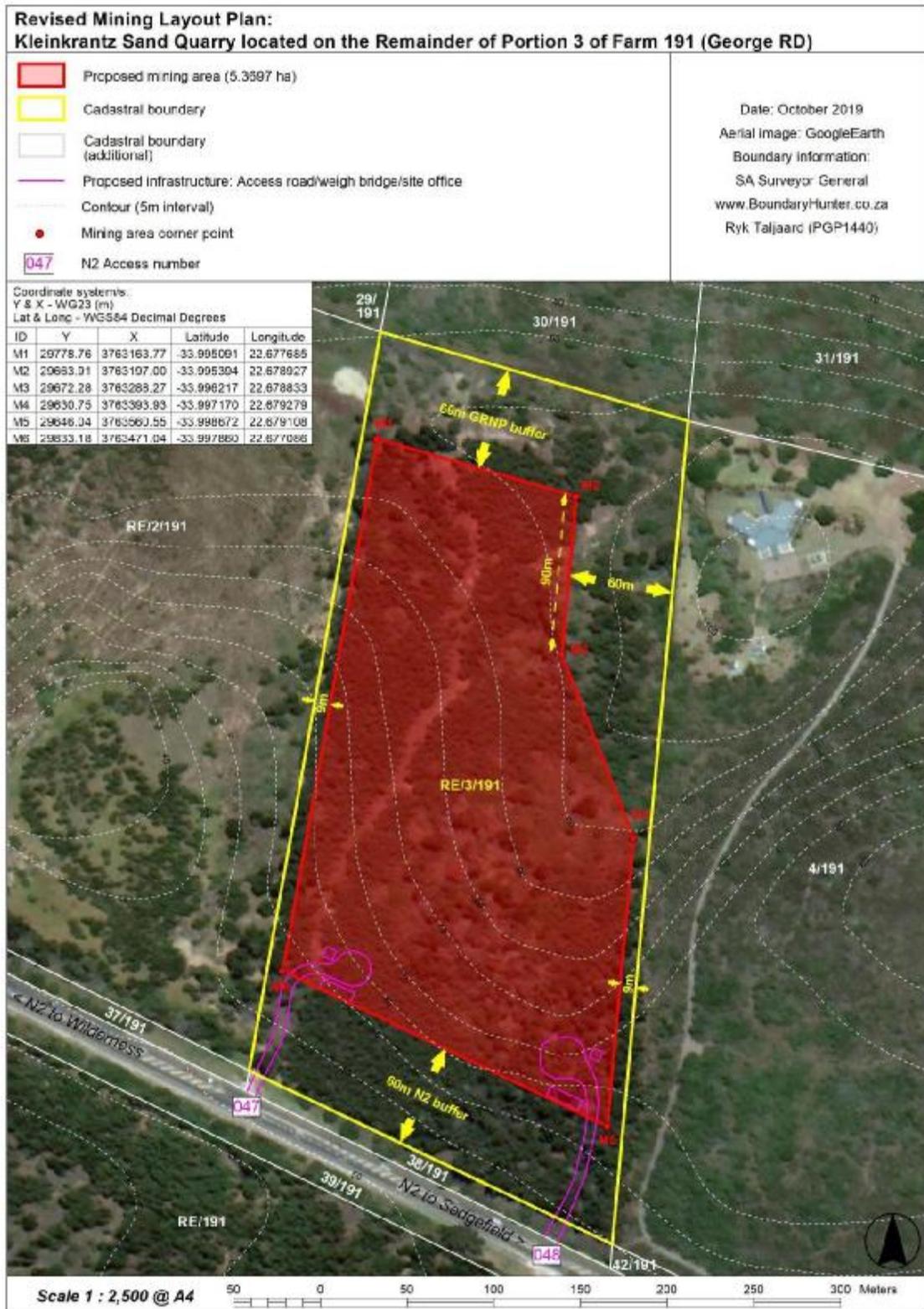


Figure 4: Revised mining layout plan

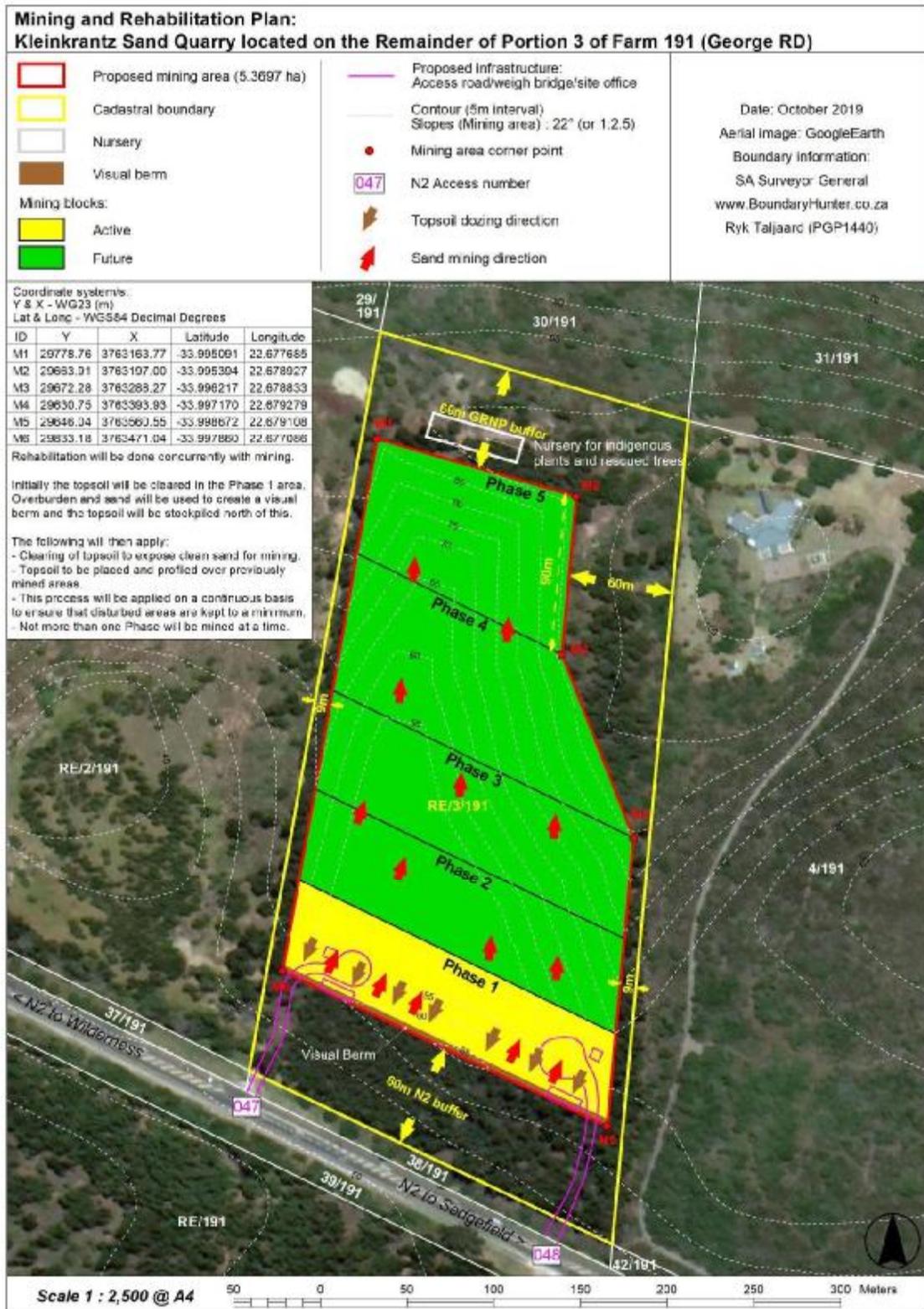


Figure 5: Mining and rehabilitation plan



Figure 6: Closure Plan

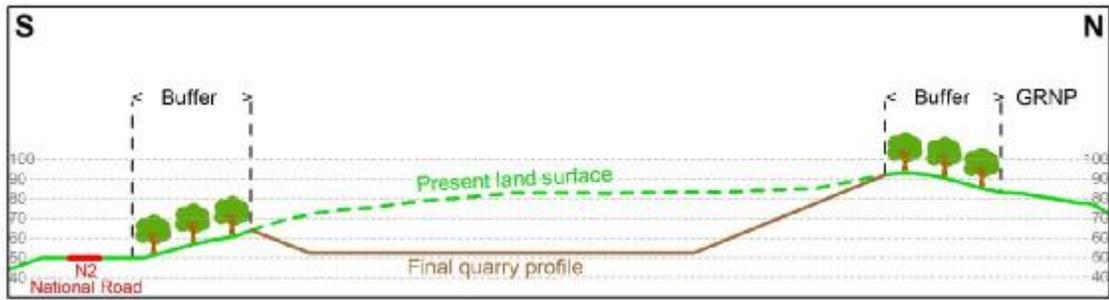


Figure 7: North-south cross section

4. DESCRIPTION OF THE PROPOSED ACTIVITIES

4.1 The scope of the proposed activities

4.1.1 Listed and specified activities applied for

Listing Notice	Activity no.	Description
LN1	22	The decommissioning of any activity requiring: (i) a closure certificate in terms of section 43 of the MPRDA; or (ii) a mining right where the throughput of the activity has reduced by 90% or more over period of 5 years excluding where the competent authority has in writing agreed that such reduction in throughput does not constitute closure.
LN1	27	The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation
LN1	28	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or afforestation, on or after 01 April 1998 and where such development: (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare.
LN2	17	Any activity including the operation of that activity which requires a mining right as contemplated in section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including— (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource; or (b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing;
LN3	4	The development of a road wider than 4 metres with a reserve less than 13.5 m. i. Western Cape ii. Areas outside urban areas: (aa) Areas containing indigenous vegetation. <i>(The existing access or a new access road across the 60 m buffer area will be developed or improved to accommodate trucks. The access position will be decided by SANRAL).</i>
LN3	18	The widening of a road by more than 4 metres. i. Western Cape ii. Areas outside urban areas: (aa) Areas containing indigenous vegetation. <i>(The existing access or a new access road across the 60 m buffer area will be developed or improved to accommodate trucks. The access position will be decided by SANRAL).</i>

4.1.2 Description of the activities to be undertaken

The Langvlei Dunes area contains suitable resources of building sand and it is an established sand mining area.

The property is located in the Garden Route and is adjacent to the Garden Route National Park (GRNP), so due care was required for the selection of the site. The applicant investigated two other potential sites however these were both rejected because of the presence of mapped Critical Biodiversity Areas as well as being visible from the N2 National Road which is a scenic route.

The RE of Portion 3 of Farm 191 was selected because it has not been mapped as a Critical Biodiversity Area and furthermore it has been previously transformed by pine plantations and dense woodlots.

There will be a 60 m wide buffer zone between the sand quarry and the N2 National Road. Based on the findings of the biodiversity and visual impact specialists as well as comments received during the public participation process a revised mining layout has been prepared. This is the preferred alternative that excludes a 60 m wide buffer zone between the quarry and the GRNP in the north as well as an additional area in the north-eastern corner of the property.

The size of the property is 9.05 hectares; however the proposed extent of the mining activities is 5.37 hectares.

The estimated duration of the proposed mining activities is approximately 20 years.

A simple sand quarry is proposed, so no underground mining or sophisticated technology is required. Mining and rehabilitation will take place concurrently.

The proposed mining and associated activities are summarised as follows:

- Establishment of site infrastructure including the access road, site office (two containers) and a weighbridge. One container will be a store and the other will be an office / control room. Solar power will be used.
- The establishment of a visual berm on the southern side of the mining area to reduce the visual impact from the N2 National Road.
- Search and rescue of indigenous plants and protected trees from each mining area before sand mining starts.
- Progressive removal of alien vegetation from the site as sand mining progresses.
- Overburden clearing and stockpiling of topsoil using a bulldozer or front end loader.
- Removal of any additional overburden and storage in separate stockpiles.
- Excavating sand and putting it through a mobile screening plant to remove oversize material (e.g. clay) or roots and branches.
- Loading of sand into trucks.
- Recording the mass of sand loaded onto customer trucks using a weighbridge and the processing of invoices.
- Profiling of slopes and the mining floor using overburden and oversize material recovered from the screening plant.
- Replacing topsoil, stabilising the soil and revegetation of the mined areas.
- Concurrent mining and rehabilitation is planned with no more than one mining phase being open at a time.
- Clearance of all remaining alien trees in the buffer areas.
- When mining has been completed, the site office, weighbridge and earth moving equipment will be removed.

The mining and rehabilitation plan and the closure plan are shown in **Figures 5 & 6**.

5. POLICY & LEGISLATIVE CONTEXT

Applicable legislation, policies, plans, guidelines, spatial tools and municipal IDPs that are applicable	Reference where applicable	How the proposed activity complies with and responds to the policy and legislative context
National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998).	The Scoping Report and the subsequent EIAR.	The application for environmental authorisation, the compilation of the Scoping Report, this EIAR and the Public Participation Process are required in terms of NEMA.
EIA Regulations, 2014 (as amended)	This report.	The listed activities that are triggered determine the Environmental Authorisation (EA) application process to be followed.
National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004)	Sections 10.1.4, 11.1, 12.2 and 19.7	The proposed mining area has been transformed by plantations and woodlots. A specialist has assessed the potential impacts on biodiversity.
National Forests Act, 1998 (Act 84 of 1998)	Sections 11.1, 19.5 and 19.7	There are two protected species present on the property (Milkwood and Cheesewood). These cannot be pruned / transplanted / damaged without the necessary permit from DAFF (Forestry Western Cape).
National Environmental Management: Waste Act, 2008 (Act 59 of 2008)	Sections 12.6 and 19.16	An integrated waste management approach that incorporates the waste management hierarchy is included in the EMPr.
National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004). National Dust Control Regulations in GN R827 of 1 November 2013.	Sections 12.4 and 19.13	Dust control measures have been included in the EMPr
Mineral and Petroleum Resources Development Act, 2008 (Act 28 of 2002)	Section 4	An application for a mining right in terms of section 22 was submitted to the DMR. This determines that the DMR is the Competent Authority (CA) for this NEMA application.

Kleinkrantz Sand Quarry: EIAR and EMPr

Applicable legislation, policies, plans, guidelines, spatial tools and municipal IDPs that are applicable	Reference where applicable	How the proposed activity complies with and responds to the policy and legislative context
Mine Health and Safety Act, 1996 (Act 29 of 1996)	Sections 12.4 and 12.5	The objects of the MHSA are to protect the health & safety of mine workers. All mining activities described in this report and the EMPr must comply with the MHSA.
Western Cape Noise Control Regulations (PN 200/2013) of 20 June 2013	Sections 12.5 and 19.14	Noise control measures have been included in the EMPr.
National Heritage Resources Act, 1999 (Act No. 25 of 1999)	Sections 11.2, 12.7 and 19.20	Heritage Western Cape required a Heritage Impact Assessment (HIA) that includes a Visual Impact Assessment (VIA).
Promotion of Administrative Justice Act, 2000 (Act 3 of 2000)	Decision by the Competent Authority	Gives effect to section 33 of the Constitution that requires that “Everyone has the right to administrative action that is lawful, reasonable and procedurally fair”.
Land Use Planning Act, 2014 (Act 3 of 2014) (LUPA)	Section 6 and Section 11.3	Consent use in terms of the George Municipal Planning By-law, 2015 is required to allow a quarry on a property that is zoned as Agriculture 1.
George Municipality – Spatial Development Framework	Section 6 and Section 11.3	The “Need & Desirability” of the project is described with respect to the SDF.
George Municipality –Integrated Development Plan (IDP)	Section 6 and Section 11.3	The “Need & Desirability” of the project is described with respect to the IDP.
DEA and DEA&DP Guidelines e.g. Need & Desirability, Public Participation, Using Specialists and Alternatives.	The Scoping Report and this EIAR.	The relevant DEA and DEA&DP guidelines have been used to compile this report, conduct the Public Participation Process (PPP) process and to guide specialist input.

6. NEED & DESIRABILITY OF THE PROPOSED ACTIVITIES

Before completing this section, the following documents were consulted: The DEA&DP's Circular EADP 0028/2014 on the "One Environmental Management System" and the EIA Regulations, 2014 and subsequent circulars and guidelines as well as the Guideline on Need and Desirability in terms of the Environmental Impact Assessment (EIA) Regulations, 2010 published by the national Department of Environmental Affairs on 20 October 2014.

Further details on the "Need & Desirability" of the proposed activities are provided in the specialist planning report (**see Appendix 4**).

The "Need & Desirability" of the project is summarised by answering the same questions that are required by the Western Cape Provincial Department of Environmental Affairs & Development Planning (DEA&DP).

Q1. Is the activity permitted in terms of the property's existing land use rights?	Yes.....	No.....✓
Explain: The property is zoned as Agriculture 1 by the George Municipality. Land use approval from the George Municipality is required.		

Q2. Will the activity be in line with the following?		
(a) Provincial Spatial Development Framework (PSDF)?	Yes ✓	No
Explain: The PSDF (2014) promotes sustainable farming and mining (i.e. activities that generate positive socio-economic returns and do not pose significant risks to the environment). The applicable policy is listed below. Policy R3: Safeguard the Western Cape's Agricultural and Mineral Resources and manage their sustainable use: 1. Record unique and high potential agricultural land in municipal SDFs, demarcate urban edges to protect these assets, and adopt and apply policies to protect this resource. 2. Record the location of mineral deposits and known reserves of construction materials in municipal SDFs, and introduce and apply land use policies that reserve these assets for possible use (subject to environmental authorization). <u>Response</u> The proposed mining right area is located on transformed land that is not high potential agricultural land.		
(b) Urban edge / Edge of built environment?	Yes ✓	No
Explain: The farm is located outside the urban edge. The proposed mining project will have no impact on the urban edge.		
(c) Integrated Development Plan (IDP) of the Municipality	Yes ✓	No
Explain: The approved George IDP (4 th generation IDP for 2017-2022) has the following strategic objectives: SO1: Develop and grow George SO2: Safe, clean and green		

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<p>SO3: Affordable quality services SO4: Participative partnerships SO5: Good governance and human capital</p> <p>The Kleinkrantz Sand Quarry will support SO1 as it will contribute to local economic development and employment. Good quality building sand is essential for construction and development projects that are needed to help diversify the economic base of the municipality. The sand resources of the site have the potential to generate revenue and employment opportunities.</p> <p>The Sand Quarry will support SO2 because it is planned to restore the area to a state that is an improvement on the current state of the land.</p> <p>The Sand Quarry will support SO3 because building sand is essential for the construction of infrastructure and housing.</p>		
<p>(d) Spatial Development Plan / Structure Plan of the Municipality</p>	<p>Yes.....✓</p>	
<p>Explain:</p> <p>The final George Municipal SDF prepared by GAPP Architects & Urban Designers (29 May 2019) provides no information about potential sources of construction material for infrastructure development in the municipal area.</p> <p>Policy E3 states: Manage rural land use in terms of the Western Cape Government's rural development guidelines and the Spatial Planning Categories (SPC) identified therein</p> <p>a) In line with Western Cape Government's guidelines for rural land use development, new investment in rural areas should not:</p> <ul style="list-style-type: none"> i. Have significant impact on biodiversity; ii. Alienate or compromise unique or high value agricultural land; iii. Compromise existing farming activities; iv. Compromise the current and future use of mineral resources; v. Be inconsistent with cultural and scenic landscapes within which it is situated; vi. Involve extensions to the municipality's reticulation networks; vii. Impose real costs or risks to the municipality delivering on their mandate. 		
<p>(e) Environmental Management Framework (EMF) adopted by the DEA&DP</p>	<p>N/A</p>	
<p>There is no approved EMF adopted by the DEA&DP for this area</p>		
<p>Q3. Is the proposed land use considered within the timeframe intended by the existing approved Spatial Development Framework (SDF)?</p>	<p>Yes.....✓</p>	<p>No</p>
<p>Explain:</p> <p>Sand mining and subsequent restoration to natural vegetation would be consistent with the George SDF. There are no specified time frames.</p>		
<p>Q4. Should development of the area concerned in terms of this land use (associated with the activity being applied for) occur here at this point in time?</p>	<p>Yes.....✓</p>	<p>No</p>
<p>Explain:</p> <p>Building sand is needed for construction and development projects in the Garden Route area.</p>		

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Q5. . Does the community/area need the activity and the associated land use concerned (is it a societal priority)?	Yes.....✓	No
Explain: Building sand is needed for construction and development projects in the Garden Route area. Sand mining is an existing activity in the area. Sand mining is a temporary activity as the quarry will be rehabilitated so that the land can be restored to fynbos and thicket vegetation. The property is zoned for agricultural use. The use of the land as a quarry is provided for as a consent use in terms of the George land use planning by-law.		
Q6. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development?	N/A	
Explain: The Kleinkrantz Sand Quarry will not require any municipal services		
Q7. Is this development provided for in the infrastructure planning of the municipality	N/A	
Explain: The municipality does not need to provide any services.		
Q8. Is this project part of a national programme to address an issue of national concern or importance?	Yes.....	No ✓
Explain: No, it is sand mining project that will contribute to the local and regional economy through the provision of sand for construction and development projects in the area.		
Q9. Do location factors favour this land use (associated with the activity applied for) at this place?	Yes.....✓	No
Explain: Yes, the location is very favourable for the provision of sand to be used for construction and development projects in the Garden Route area.		
Q10. Will the activity or the land use associated with the activity applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?	Yes.....	No ✓
Explain: Yes, the property is located adjacent to the Garden Route National Park and the N2 National Road. Specialist biodiversity and heritage (including visual impact) assessments have been undertaken. The recommended mitigation measures to ensure that the impacts on sensitive natural and cultural areas are minimised have been included in this EIAR and EMPr.		

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Q11. Will the development impact on people's health and wellbeing (e.g. in terms of noise, odours, visual character and sense of place, etc.)?	Yes.....✓	No
Explain: There will be noise and dust impacts during the operational life of the mine. The applicant must ensure that noise and dust impacts comply with the relevant noise and dust control regulations. Once the area has been rehabilitated the site will fit in with the sense of place of the area.		
Q12 Will the proposed activity or the land use associated with the activity applied for, result in unacceptable opportunity costs?	Yes.....	No ✓
Explain: There will be no unacceptable opportunity costs.		
Q13 Are there any cumulative impacts (positive and negative) of the proposed land use associated with the activity applied for, be?	Yes.....✓	No
Explain: <u>Cumulative negative impacts:</u> This will be an additional sand quarry in the area, however at least one of the other quarries is approaching the end of its life. <u>Cumulative positive impacts:</u> The project will provide employment as well as sand that can be used for construction and development projects.		
Q14. Is the development the best practicable environmental option for this land/site?	Yes.....✓	No
Explain: If the site is left as it is (i.e. the "no go alternative") then the land will probably continue degrade and an opportunity will be lost to generate revenue and create employment. This would have provided the necessary finances to clear the alien vegetation from the site and to restore the area back to natural vegetation. In its current state the land is not suitable to be used for agricultural or tourism purposes.		
Q15. What will the benefits be to society in general and to the local communities?	Yes.....✓	No
Explain: The sand quarry will provide sand for construction and development. Construction and development projects provide economic opportunities for society in general and also for local communities. As part of the required Social and Labour Plan, PVVK Management Services CC is required to contribute to a Local Economic Development (LED) Project that is supported by the George Municipality.		
Q16 Any other need and desirability considerations related to the proposed activity?	Yes.....	No ✓
None. See Appendix 4 for further details on "need and desirability".		

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Q17. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account:

Explain:

The principles of Integrated Environmental Management (IEM) as set out in s23 of NEMA have been considered in this environmental assessment and EMPr. Potential impacts on the environment, socio-economic conditions, and cultural heritage have been assessed, and steps have been taken to mitigate negative impacts, and enhance positive impacts. Adequate and appropriate opportunity has been provided for public participation. Environmental attributes have been considered, and environmental management practices have been identified and established to ensure that the proposed activities would proceed in accordance with the principles of IEM.

Q18. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account:

Explain:

In accordance with the s2 NEMA Principles this assessment has placed people and their needs at the forefront of its concern. The importance of sustainable development, in terms of social, environmental and economic factors has been carefully considered.

The participation of all potential interested and affected parties has been encouraged.

The social, economic and environmental impacts of activities, including disadvantages and benefits, have been considered, assessed and evaluated. Recommendations made are considered to be appropriate in the light of this consideration and assessment.

The applicant is aware that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or health effects must be paid for by those harming the environment.

7. A MOTIVATION FOR THE PREFERRED ALTERNATIVE

(A motivation for the preferred development footprint)

The company is currently operating in the West Coast areas of the Swartland and Saldanha Bay. The company supplies materials to the construction industry and requires viable mineral resources in order to sustain its business.

The company has identified the Southern Cape area as a region with an on-going demand for construction materials. For more than 5 years the company has been investigating potential sites. The company has evaluated numerous sites between Knysna and Riversdale. Many of these alternatives were rejected at an early stage due to the identification of potential fatal flaws e.g. the mineral resources did not comply with customer specifications or the site was located in an environmentally sensitive area.

The Langvlei Dunes area contains suitable resources of building sand and it is an established sand mining area. There are currently three other sand mines in the area. The site is well located to supply sand for construction and development projects to the entire area situated between Knysna and George.

The company investigated two other properties in the Langvlei Dunes area i.e. RE/Erf 1288 Kleinkrantz (Alternative 1) and Portion 5 of the Farm Boven Lange Valley 189 (Alternative 2) before the Remainder of Portion 3 of Farm 191 (Alternative 3) was purchased (**see Figures 8 and 9**).

During the due diligence process for Alternative 1 it was noted that the southern half of the property is mapped as a Critical Biodiversity Area (CBA) whilst most of the rest of the property is mapped as an Ecological Support Area (ESA). There is no existing access to the N2 National Road and the property is located on a bend in the National Road which means that any access would be dangerous. It was concluded that Alternative 1 was not a viable alternative.

Alternative 2 (Farm 5/189) is located adjacent to the Botha & Barnard furniture company. This potential site is 26.2 hectares in size, with good access from the N2 National Road and was considered to be a very attractive target. As part of the due diligence, HillLand Environmental was appointed to compile a botanical sensitivity report of the property. HillLand Environmental concluded that the remaining natural vegetation on site has a HIGH sensitivity and conservation value. Most of the site is mapped as a Critical Biodiversity Area (CBA) and therefore it was decided not to purchase the property.

Subsequently, Alternative 3 (RE/3/191) came onto the market. In terms of vegetation and landuse / landcover the area is mapped in the DEA landcover layer 2014 (**see Figure 9**) as supporting Mature Plantation and Woodlot. This closely resembles the situation on site. The property consists of mature stands of pine and black wattle that appear to have been managed as a wood lot (fire wood collection) over time.

A few isolated Coastal Thicket and Fynbos Mosaic pockets occur along the northern fence line boundary with the Garden Route National Park and on the north eastern property boundary.

This site was selected because it is located on transformed land and has not been mapped as a Critical Biodiversity Area. Furthermore, with an adequate buffer in place between the proposed mining area and the N2 National Road it should be possible to ensure that the visual impact is limited.

The property currently supports very little of the remaining natural vegetation and so there is an opportunity for the company to restore natural vegetation back onto the land after mining and to improve the ecological condition of the property.

Alternative 3 was therefore selected and it was decided to purchase the property.

Further studies have been undertaken during the EIA phase to refine the details of the mining area on the property. This has included specialist biodiversity and visual impact assessments.

The extent of the proposed mining area has been reduced and the mining layout has been revised based on the findings of the specialist studies.

The “revised and preferred alternative” takes into account location alternatives, activity alternatives, layout alternatives, technology alternatives and operational alternatives.

8. DETAILS OF THE ALTERNATIVES CONSIDERED

8.1 Details of the alternatives considered

(Note: "Alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to:

- (a) the property on which or location where it is proposed to undertake the activity;*
- (b) the type of activity to be undertaken;*
- (c) the design or layout of the activity;*
- (d) the technology to be used in the activity;*
- (e) the operational aspects of the activity; and*
- (f) the option of not implementing the activity ("the no-go alternative").*

8.1.1 Location or site alternatives

The Tip Trans Cape Group operates a number of sand and gravel mines in the Swartland and The company is currently operating in the West Coast areas of the Swartland and Saldanha Bay. The company supplies materials to the construction industry and requires viable mineral resources in order to sustain its business.

The company has identified the Southern Cape area as a region with an on-going demand for construction materials. For more than 5 years the company has been investigating potential sites. The company has evaluated numerous sites between Knysna and Riversdale. Many of these alternatives were rejected at an early stage due to the identification of potential fatal flaws e.g. the mineral resources did not comply with customer specifications or the site was located in an environmentally sensitive area.

The Langvlei Dunes area contains suitable resources of building sand and it is an established sand mining area. There are currently three other sand mines in the area. The site is well located to supply sand for construction and development projects to the entire area situated between Knysna and George.

The company investigated two other properties in the Langvlei Dunes area i.e. RE/Erf 1288 Kleinkrantz (**Alternative 1**) and Portion 5 of the Farm Boven Lange Valley 189 (**Alternative 2**) before the Remainder of Portion 3 of Farm 191 (**Alternative 3**) was purchased (see **Figures 8 and 9**).

During the due diligence process for **Alternative 1** it was noted that the southern half of the property is mapped as a Critical Biodiversity Area (CBA) whilst most of the rest of the property is mapped as an Ecological Support Area (ESA). There is no existing access to the N2 National Road and the property is located on a bend in the National Road which means that any access would be dangerous. It was concluded that **Alternative 1** was not a viable alternative.

Alternative 2 (Farm 5/189) is located adjacent to the Botha & Barnard furniture company. This potential site is 26.2 hectares in size, with good access from the N2 National Road and was considered to be a very attractive target. As part of the due diligence, HilLand Environmental was appointed to compile a botanical sensitivity report of the property. HilLand Environmental concluded that the remaining natural vegetation on site has a high sensitivity and conservation value. Most of the site is mapped as a Critical Biodiversity Area (CBA) and therefore it was decided not to purchase the property.



Figure 8: Critical Biodiversity Areas (CBA) map of the alternative sites considered



Figure 9: Land cover map (DEA, 2014) of the alternative sites

Note: The brown colour is mapped as woodlots (indicating mature plantations or woodlots)

Subsequently, **Alternative 3** (RE/3/191) came onto the market. In terms of vegetation and landuse / landcover the area is mapped in the DEA landcover layer 2014 (see **Figure 9**) as supporting Mature Plantations and Woodlots. This closely resembles the situation on site. The property consists of mature stands of pine and black wattle that appear to have been managed as a wood lot (fire wood collection) over time.

A few isolated Coastal Thicket and Fynbos Mosaic pockets occur along the northern fence line boundary with the Garden Route National Park and on the north eastern property boundary.

The site was selected because it is located on transformed land and has not been mapped as a Critical Biodiversity Area. Furthermore, with an adequate buffer in place between the proposed mining area and the N2 National Road it should be possible to ensure that the visual impact is limited.

The property currently supports very little of the remaining natural vegetation and so there is an opportunity for the company to restore natural vegetation back onto the land after mining and to improve the ecological condition of the property.

Alternative 3 was therefore selected and it was decided to purchase the property.

8.1.2 Activity alternatives

PVVK Management Services CC's business is the provision of construction materials, transport and related services. So when an area is investigated the primary focus is to evaluate the viability of mining the mineral resource from a financial, technical and environmental point of view.

The Paradise Ridge Conservancy suggests that the property should be used to develop a high-end rural residence and/or a guesthouse. Property development of this nature would require major capital expenditure before any income could be generated.

PVVK Management Services CC is not a property developer and therefore has not considered developing the property as a high end rural residence or a guesthouse.

The holder of a mining right is required to rehabilitate the environment affected by mining to its natural state or to another predetermined land use.

In this case the property consists mainly of mature stands of pine and black wattle and so there is an opportunity for the company to improve the ecological condition of the site by restoring it to natural vegetation after mining.

The proposed sand mining and rehabilitation activities will not foreclose future land use options on this property.

8.1.3 Design or layout alternatives

The design or layout of a mining project is determined by the shape, position and orientation of the mineral resource.

Further studies have been undertaken during the EIA phase to refine the details of the mining area on the property. This included specialist biodiversity and visual impact assessments.

The extent of the proposed mining area has been reduced from 6.58 hectares down to 5.36 hectares and the mining layout has been revised based on the findings of the specialist studies.

The revised mining layout is a definite improvement to the proposed original mining layout.

The revised mining layout plan is shown in **Figure 4** and the mining and rehabilitation plan is shown in **Figure 5**. This includes a 60 metre buffers between the proposed sand quarry and the N2 National Road and the Garden Route National Park (GRNP). An additional buffer to exclude natural vegetation remnants in the north-eastern corner of the property has been provided for.

The revised mining layout plan (**Figure 4**) represents the footprint of the preferred alternative.

8.1.4 Technology alternatives

The technology used in a mining project is determined by the shape, position and orientation of the mineral resource e.g. if a mineral deposit is situated below the surface then an underground mining method would be appropriate.

For surface sand mining in the Western Cape essentially two alternative mining methods are used. Where the sand occurs below the current land surface (e.g. in the hillwash sand deposits in the Malmesbury area) then an excavator is used to reach down and mine the sand.

When dune sand is mined, a front end loader is normally used to mine the sand.

For this proposed project, an excavator or front end loader may be used for mining and a bulldozer will be used during the rehabilitation of the site.

The significance of the environmental impacts associated with different possible technology alternatives would be very similar, therefore technology alternatives are not considered any further.

8.1.5 Operational alternatives

From an operational point of view it could be possible to mine this sand resource on a continuous basis (i.e. by using a double shift over 24 hours). The reality is that there would be additional health & safety considerations (e.g. requiring extra lighting at night). Mining operations will therefore take place during normal working hours only.

8.1.6 The “no go” alternative

The assessment of alternatives must at all times include the “no go” option as a baseline against which all other alternatives must be measured. The “no go” alternative is therefore assessed together with the revised and preferred alternative.

9. PUBLIC PARTICIPATION PROCESS

9.1 Details of the public participation process

The public participation process has been conducted according to the requirements as prescribed in Regulations 39 to 44 of the EIA Regulations, 2014.

Full details of the public participation process conducted including copies of all supporting documents (e.g. the information provided to interested & affected parties and the comments received to date) are included in **Appendix 1**.

9.2 Summary of the issues raised by interested & affected parties

The issues and concerns that have been raised during the public participation process to date as well as the responses to these issues are summarised in **Table 1** (see the following page).

Table 1: Comments – response summary table

NAME	ISSUES AND CONCERNS	RESPONSE
LAND OWNER: <i>Pieter Visser Trust Farm RE/3/191</i>	The land owner provided consent for the application in a resolution dated 26 April 2019.	Noted.
NEIGHBOURS: <i>Wineyards Resort Development (Pty) Ltd Farm RE/2/191</i>	E-mail dated 11 May 2019. As the immediate neighbour to the proposed quarry I wish to be registered as an affected party and being kept informed about all proceedings.	Agreed.
<i>Wineyards Resort Development (Pty) Ltd Farm RE/2/191</i>	E-mail dated 1 August 2019 from Helmut Ernst 1. My property, sharing the boundary on the eastern side, was originally also a sand mine and was excavated close to our common boundary, leaving only a narrow passage between the fence and a steep slope. I strongly object to your proposal for a 6m building line to which may be excavated on your side, leaving only a narrow ridge on a sand dune which might collapse over time. My access would be at risk! I am insisting on the prescribed 30m line on your western boundary. 2. The existing entry to my property may not be used for access to your property! I see a serious security risk for myself and my guests if heavy trucks would have to turn from the N2 into our property! 3. The suggested 60m buffer zone will not block the view from the N2 as the situation of the sand mine next to Timber Lake shows. 4. There is presently abundant wildlife on the dune properties which will be negatively affected and be driven away. 5. Trucks that enter the site are usually activating their exhaust brakes when approaching the turn off to the site and accelerating when feeding into the flowing traffic, generating excessive additional noise, which will affect my and my neighbours quality of the life. This is not in keeping with the ambience of the Garden Route area. 6. Heavy earthmoving machinery will generate the most irritating "bleep, bleep" when they are in	The applicant will ensure that all buffer areas are stable. Sand has a natural angle of repose, so there will not be a narrow ridge. SANRAL will determine the access to be used. A Visual Impact Assessment (VIA) has been undertaken and the 60m buffer will definitely help to minimise the visual impact. The mine next to Timber Lake does not have a buffer. Small animals will move away from earth moving equipment onto the neighbouring properties. No trucks have entered the site so far. There is a continuous background noise level from the traffic on the N2. This can be mitigated by using by replacing

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NAME	ISSUES AND CONCERNS	RESPONSE
	<p>reverse gear, reverberating through the valley.</p> <p>7. The dune consists of fine sand which will be blown all over, together with diesel and exhaust fumes, which causes pollution, especially on roof areas which are used for rainwater harvesting and on solar panels!</p> <p>8. It is inevitable that there will be oil spills, grease and diesel contaminating the sand and there is real danger that the groundwater quality will be negatively affected.</p> <p>9. There is absolutely no consideration for a "Sense of Place" by turning this part of the Garden Route into a whole row of quarries! I do not believe that this type of activity is in keeping with the Langvlei Dunes / Kleinkrantz environment.</p> <p>10. The operation of the sand mine will have a serious negative effect on the value of my and the neighbouring properties.</p>	<p>with low frequency reverse signals.</p> <p>The company will be required to comply with the dust control regulations.</p> <p>Measures to prevent hydrocarbon spills will be included in the EMPr.</p> <p>Your property, RE/2/191 was previously a sand mine.</p> <p>A sand mine was previously operated on your property.</p>
<p><i>Field Africa Recording (Pty) Ltd Farm RE/4/191</i></p>	<p>E-mail dated 12 May 2019.</p> <p>Don't worry. I will destroy them for fun. I am not wasting my time to protest with the municipality. They are playing with the devil. They can't do what they are saying they want to do there.</p> <p>WhatsApp dated 18 February 2019.</p> <p>I have decided to moved out of SA to the US. I am selling Field Africa Recording for 25 million rands.</p>	<p>Noted.</p> <p>Noted.</p> <p>Noted.</p>
<p><i>SanParks Farms 29/191, 30/191 & 31/191 SANRAL Farm 38/191</i></p>	<p>Comment included under Authorities (below).</p>	<p>Noted.</p>
<p>ISAPs: <i>Wilderness & Lakes Environmental Action Forum (WALEAF) Charles Scott</i></p>	<p>E-mail dated 13 May 2019.</p> <p>Request to register.</p> <p>E-mail dated 13 May 2019.</p> <p>Request to register.</p>	<p>Registered.</p> <p>Registered.</p>
<p><i>Andre Haquebord</i></p>	<p>E-mail dated 13 May 2019.</p>	

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NAME	ISSUES AND CONCERNS	RESPONSE
	Request to register.	Registered.
<i>Hendrik van der Hoven & Elie van der Hoven</i>	E-mail dated 20 May 2019. Request to register.	Registered.
<i>Wilderness Residents and Ratepayers Association (W/RRA)</i>	E-mail dated 20 May 2019. Request to register.	Registered.
<i>Jane Mackenzie-Hoskyn and Donald Mackenzie</i> <i>(230 Langvlei Dunes)</i>	E-mail dated 25 May 2019. Request to register.	Registered.
<i>Boven Lange Valley Nature Estate Property Owners</i>	Letter dated 19 June 2019. The BID has 'selected' aspects and further makes assumptions on some aspects that potentially could result in negative environmental impacts.	The BID is an initial document that was prepared to provide background information to I&APs.
	Cultural Resources: What would the impact be on the Paradise Ridge Conservancy (of which owners of the Boven Lange Valley Nature Estate are members) and the proposed extended Garden Route National Park. A full cultural impact study should be undertaken to establish the impact.	Heritage Western Cape has determined the extent of the studies that are required.
	Visual and access: How would the visual 'screen' change over 20 years with the eradication of aliens as well as the visual impact on an existing house very close to the common boundary and other adjacent properties. A full visual impact study should be undertaken.	A specialist visual impact assessment has been undertaken.
	How are additional heavy vehicles going the impact on the users of the N2? This should be determined by a full traffic study.	SANRAL will determine the requirements.
	Water resources: No indication is given of the depth of the mine. Underground water resources of the greater area could be negatively impacted on. Some properties rely solely on ground and or rainwater. A detailed hydrological study should be required.	An assessment of the impact on water resources is included in the EIA/ R.
	Noise and dust: Local residents experience the noise from the N2 especially with big trucks. The noise is not experienced the same in the surrounding area but is very dependant of the wind direction. Dust is also a problem to properties close to the existing sand mines and could further result in polluted water where rainwater is harvested. These potential impacts should be investigated.	Noise and dust have been assessed.
	Socio economic impact: What would the local impact be? The BID suggests that the sand is an	Socio-economic impacts have been

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NAME	ISSUES AND CONCERNS	RESPONSE
	<p>essential requirement for the Garden Route.</p> <p>Details of the mine (depth and volume of material removed) and the post use/rehabilitation of the mine is not at this stage disclosed and is vitally important.</p>	<p>assessed.</p> <p>The details of the mine are provided in the EIA/.</p>
<p><i>Paradise Ridge Conservancy</i></p>	<p>Letter dated 19 June 2019.</p> <p>We would be grateful if you would clarify which were the other two alternative plots investigated?</p> <p>The conservancy objects to another sandmine in the area as it:</p> <ul style="list-style-type: none"> • goes against the Conservancy's objectives, • contradicts various local, provincial, national and international environmental objectives: <ul style="list-style-type: none"> - OSCAER - SANParks GRNP extension - SANParks/WFW bufferzone project - CN conservancy registration - Important Bird and Biodiversity Area - RAMSAR - LUPO - George Municipality spatial plan "green area" - DAF/ - UNESCO Biosphere Reserve buffer zone not a transition zone <p>- Aspect and visual affect: the property is predominantly facing south/south-west towards the N2 (effectively "The Garden Route" and will have a negative visual and economic impact on tourism in the area</p> <p>- Cultural heritage: The property is part of one of southern Africa's highest fossilised dunes that is estimated to be over 2 million years old. This is something unique that is shared by all of our citizens and should not be mined as it is irreplaceable.</p> <p>- Economic impact: Timberlake Organic Farm Village is a stone's throw down the road to the west and two upmarket guesthouses are to the east. These businesses rely on tourism and employ approx. 100 local people. A sandmine between them can in no way improve or not impact their businesses.</p> <p>- Removal of AIS and recovery of endangered and protected species: Roughly 600 hectares out of 2000 hectares within the conservancy has been cleared of AIS predominantly by the SANParks/WFW bufferzone project. In the 7 years of experience assisting with this project, within a year of clearing the AIS, numerous endangered and protected species have</p>	<p>Agreed.</p> <p>Noted.</p> <p>The specialist town planning report and the EIA Report has included these aspects.</p> <p>A visual impact assessment has been conducted.</p> <p>Heritage Western Cape has determined the extent of the studies that are required.</p> <p>There is an existing sand mine directly adjacent to Timberlake. This site is two properties further west.</p> <p>A specialist biodiversity assessment has been undertaken.</p>

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<p><i>Paradise Ridge Conservancy</i></p>	<p>been found on these properties. One cannot conclude that these protected species are not on the property until the property is responsibly cleared of AIS and given at least 1 year to rehabilitate to know if these species and their seeds are not lying dormant. A knowledgeable local botanist will need to do a species report and prepare a list of important species to look for.</p> <p>-Dust: The area often experiences very strong winds mainly from the SE, SW and NW. These strong winds will affect neighbouring residents and their rainwater quality and lifestyle i.e. covering furniture and decks especially in the strong SE. Besides direct neighbours, residents at Langvlei Dunes, an estate with over 73 plots and only a km or so away will be negatively affected by the noise and dust of the sandmine.</p> <p>Letter dated 12 August 2019.</p> <p>The Paradise Ridge Conservancy was registered with Cape Nature in 2012. We represent 23 properties (468ha) in the immediate area of the proposed sand mine. To ensure that the competent authority is able to make a wise decision based on accurate information, as a local environmental residents organisation, the Paradise Ridge Conservancy would like the following points to be reassessed for the EIA:</p> <p>1) Langvlei Dunes is not an established sand mining area (Pg. 14 para. 1; Pg:22 7.1.1)). Langvlei Dunes is a rural residential area that buffers the Garden Route National Park and Ramsar-protected Wilderness Lakes Section. There are currently only 3 sand mines nearby which were approved a long time ago (10 and 20 years ago) and will be closing within the next few years (±2022).</p> <p>2) The sand mine will be visible from the N2 highway. The report notes that the other two properties considered were rejected because of visibility from this scenic route (Pg.14 para. 2). Why is this property still an option then? The fact that it would be visible from the N2 is perfectly obvious to see from the sand mine on 5/191, which has the same aspect and although it has tall pine trees in front of it, is still clearly visible. Seeing the sand mine from the N2 would be an unacceptable opportunity cost due to its negative visual impact and related impact on tourism in the area (Pg.19 Q12). The report states that dense vegetation will create a visual barrier (pg.14 para. 4), but then contradicts itself by ensuring the clearance of the alien trees (pg.14 para. 8 point 11) which constitute this "dense vegetation".</p> <p>The rehabilitation of indigenous vegetation as a screen will not suffice as it grows very slowly and does not get as tall as the alien trees. The report contradicts itself here because there is no clear good solution to this problem except for the No Go alternative. Either the sand mine will be VERY visible from the N2 because the alien trees will be removed, therefore improving the environmental outcome of the property OR the sand mine will be LESS visible because the alien trees will not be removed. In this case the sand mine will not provide any environmental benefit, but will still be visible.</p>	<p>The applicant is required to comply with the noise and dust control regulations.</p> <p>The closest property owned by a member of the Paradise Ridge Conservancy is more than 500 metres away from the site and is located on the other (south) side of the N2 National Road (see Figure 1).</p> <p>The area is zoned by the George Municipality for agriculture and not only for upmarket rural residential purposes. This is an established sand mining area. It is not known when the active sand mines will be closing.</p> <p>The sand mine on 5/191 has a different setting because it can be seen from the N2 looking downwards. Furthermore 5/191 does not have an effective 60 metre buffer zone between the N2 and the mine.</p> <p>A visual impact assessment has been completed.</p> <p>This is described in more detail in the biodiversity assessment. The alien vegetation will act as a screen for the initial site establishment activities. Once mining operations have been established it will be possible to prepare a berm to act as a visual</p>

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	<p>3) The selected property is mapped as a "BSP Protected Area" even though it is not mapped as Critically Biodiverse on CapeFarmMapper ver 2.2.1.5 (Pg.14 para. 3; Pg.23 Figure 5; Pg.24 para. 3). This means that its environmental protection level is higher, not lower, than a CBA.</p> <p>4) The estimated duration for the mining permit of 20 years (Pg.14 para. 6) exceeds current local municipal By-law regulations. According to ordinance 18(1)(6), a land-use departure can only be issued for a period of 5 years.</p> <p>5) The property was/is not a pine plantation or woodlot as suggested repeatedly in the report (Pg.14 para 3; Pg.15 in relation to NEM:BA; Pg:23 Figure 6; Pg.24 para. 1; Pg.36 para 2). The CapeFarmMapper ver 2.2.1.5 resource layer is a generalised raster map that needs ground truthing to be verified. This property has merely been neglected, not transformed, by its previous landowner resulting in the current dense infestation of pine and black wattle. If this property was/is a pine plantation/woodlot as suggested, please could the owner kindly furnish us with the relevant demarcation permits that pertain to the property?</p> <p>6) The proposed activity will not be in line with the PSDF(2014) as it poses a significant risk to the environment (Pg.17 6 Q2a). Undeveloped properties like this, in this area, provide vital wildlife corridors between the coast and the Wilderness Lakes thereby ensuring the continued ecological viability of the National Park. The wildlife corridor on this property will be disturbed by the mining noise and activity. The property will also lose its potential to be fully restored from an alien infestation to highly biodiverse indigenous vegetation.</p> <p>7) A sand mine will not be an improvement to the current state of the land (Pg.17 6 Q2c; Pg.24 7.1.2). The reality is that true rehabilitation/restoration after sand mining is practically impossible on a human time-scale. Even if the top soil is stockpiled for rehabilitation, this usually does not allow enough air movement and will cause numerous seeds and bulbs to rot over time. After disturbing the top soil layer and mining the sand, biodiversity levels are very poor and much of the property will be unusable due to the steep undulations of the mining scar left behind. The No Go alternative together with the removal of the alien invasive plants and subsequent botanical recovery would be the quickest and best environmental option for this property. I am a registered invasive species specialist and have over 10 years experience of clearing aliens in this area. It would take at approx. 3 months to clear the property of these alien invasive plants and 12 months to start to see the recovery of the indigenous flora. It is noted that the report states that the applicant bought the property solely to be used as a sand mine and that other activities are therefore not an option (Pg. 24 7.1.2). However, lack of environmental due diligence on the landowner's/applicant's part should not equate to limiting the best use or environmental potential of this land. The property could successfully be used for an upmarket rural residence or guest house with northerly views over the Wilderness Lakes as many</p>	<p>screen. Once the berm is vegetated, then it will be possible to progressively clear the alien vegetation in the buffer area.</p> <p>Although this may be a desired state in terms of WCBSF (2017), it is private property and has not been proclaimed as a protected area.</p> <p>The land use application will be for a consent use and not a departure.</p> <p>Historical aerial photography clearly shows that the property was previously covered with a pine plantation.</p> <p>The property has been ground-truthed.</p> <p>A 60 m buffer with the GRNP and remnant natural vegetation has been excluded from the mining area and will provide a "wildlife corridor". The dense stands of wattle and mature pines will be progressively cleared and replaced with indigenous vegetation.</p> <p>A specialist biodiversity assessment and a rehabilitation plan are included in the EIA & EMPr.</p> <p>The applicant commits upfront to the conservation outcomes for the sand quarry and is willing to consider joining the Paradise Ridge Conservancy (PRC). This will ensure the long-term conservation outcomes as part of a sustainable quarry operation and can involve the PRC in playing an active role in the rehabilitation successes at the proposed quarry.</p>

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	<p>neighbours have done.</p> <p>8) The activity will not be in line with the SDP because it would be "inconsistent with cultural and scenic landscapes within which it is situated" (Pg.18 6 Q2d(v)). The general "sense of place" is that of rural farmsteads and exquisite natural surroundings which can be enjoyed at a variety of tourist stops and activities.</p> <p>9) A new sand mine should not occur here at this time (Pg.18 6 Q4) because the direct surrounding area in which the property sits is a Priority Natural Area for the Garden Route National Park. The other sand mines in the area will be closing soon and the full restoration of this important buffer zone will be imperative for the integrity of the Wilderness Section of the National Park and its survival.</p> <p>10) The proposed activity is not a societal priority (Pg.18 6 Q5). It would be of greater benefit to the community if this property were cleared of alien invasive plants and rehabilitated. The proposed activity will lead to the further degradation of the area therefore negatively affecting the community.</p> <p>11) Location factors do not favour a sand mine at this place (Pg.19 6 Q9). The property sits in the middle of a Cape Nature registered conservancy area, is along the main thoroughfare of the Garden Route in a rural, natural area and is on the boundary to the National Park.</p> <p>12) The impact on people's health and wellbeing will be for a long term duration (Pg. 19 6 Q10). The noise and dust would impact surrounding properties for the duration of operation which is potentially 20 years.</p> <p>13) A sand mine on this property is not the best practical environmental option (Pg.20 6 Q14). The report suggests that the owner requires the mine to provide the necessary finances to cover the cost of alien clearing. However, the landowner was contacted by the conservancy via email on 12 December 2018 and again 1 August 2019 with an offer from SANParks to have the aliens cleared for free by Working for Water. This would include two follow-up clearings. The SANParks buffer zone project has injected millions of rands of Government funds to clear aliens in this buffer zone to the National Park to improve biodiversity. This activity therefore not only contradicts National Government environmental objectives, but will destroy the biodiversity potential of the property and its contribution to the collective environmental outcomes of the conservancy area. Once cleared the land could easily be used for high-end tourist activities. In response to Pg. 18 6 Q14 and Pg. 40 Table 4 re Biodiversity, please note landowner did what he was legal bound to do, then the property would not degrade if the sand mine was not approved.</p> <p>14) Local wind speeds are not generally low (Pg. 35 9.2). This is particularly true for the North-Wester and South-Easter which frequently reach 30km/h and more. These strong winds, which have been recorded as reaching 110km/h and 200km/h respectively, would aid the dispersal of dust to surrounding homes on Pinedew Farm, Boven Lange Valley Nature Estate and Langveel Dunes (eventually ±100 households).</p>	<p>The Garden Route includes farming, forestry, sawmills, furniture making factories and other mines i.e. it is also a productive area and not only a tourist area.</p> <p>Building sand is needed for construction and development projects in the Garden Route. It is not known when the other sand mines will be closing.</p> <p>Building sand is needed for construction and development projects in the Garden Route.</p> <p>Geology does not distribute sand deposits evenly across the landscape. Good quality building sand occurs in this area.</p> <p>The applicant will be required to comply with the noise and dust control regulations.</p> <p>The current landowner purchased the property in 2019 and has had no communication from SANParks.</p> <p>The applicant commits upfront to the conservation outcomes for the sand quarry and is willing to consider joining the Paradise Ridge Conservancy (PRC).</p> <p>It is understood that the Paradise Ridge is a favoured destination for paragliders because of the consistent and gentle wind speeds most of the time. The very high speeds of 110km/h and 200km/h would only occur in</p>

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<p>The following Red Data species and protected trees are found on nearby properties: <i>Erica glandulosa subsp. fourcadei</i> (VU) <i>Cullinia carlinoides</i> (NT) <i>Gladiolus vaginatis</i> (VU) <i>Satyrum princeps</i> (VU) <i>Pitiosporum viridiflorum</i> (Cheeseewood - protected tree) <i>Sideroxylon inermis subsp. inermis</i> (White Milkwood - protected tree) <i>Cape Flightless Dungbeetle</i> (VU) – <i>Circallium bacchus</i> <i>Krynsna Woodpecker</i> (NT) - <i>Campethera notata</i> <i>Cape Leopard</i> (VU) – <i>Panthera pardus melanotica</i> <i>Cape Cobra</i> – <i>Naja nivea</i></p>	<p>These species should be searched for during the biodiversity report. However, it should be noted that some of these species might only appear on the property after the clearing of the alien invasive plant infestation and rehabilitation has occurred.</p> <p>In conclusion, the scoping report currently gives a false impression of the general area being a sandmining hub and that the property is beyond rescue due to the alien tree infestation. However, the reality on the ground is that the said property is surrounded by highly biodiverse, strictly environmentally protected (OSCAER), rural-residential properties, active cattle farms and tourist attractions and is directly on the boundary to a National Park. This property, as an undeveloped property, currently provides a direct wildlife corridor for animals, and their related seed dispersal, from the coast at Pinedew Farm (which is opposite the property) to the internationally protected Ramsar Wilderness Lakes system protected by SANParks.</p> <p>The best outcome for this property, the National Park and its neighbouring communities is the “No Go” alternative. The alien invasive plants could be cleared for free through the SANParks/WfW offer and within a year the indigenous vegetation would be recovering.</p> <p>This increase of biodiversity coupled with its spectacular northern views over the lakes, this property could then be used as a high-end rural residence and/or guesthouse as neighbouring properties have done. The approval of a mining right on this property will destroy any chance it may have of improving the environment on the property itself, or the neighbourhood in general, as well as cause the destruction of the existing wildlife corridor that currently exists through the property to the National Park.</p>	<p>exceptional circumstances e.g. bergwinds or winter storms.</p> <p>The protected trees were mapped and GPS locations have been recorded (see Appendix 2).</p> <p>The biodiversity specialist has recorded all plant species identified on the property.</p> <p>The Paradise Ridge Conservancy favours only two alternatives for the land: 1. The “No Go” Alternative 2. “High end rural residence” or “upmarket rural residence”.</p> <p>The applicant has committed to the conservation outcomes for the sand quarry.</p> <p>The remnant natural vegetation in the north-east and a 60 metre buffer with the GRNP will be excluded from mining. When the site has been rehabilitated the property can still be used for a “high-end rural residence and/or guesthouse”.</p>
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COUNCILLOR: Ward 4 Councillor	No comment submitted.	Noted.
AUTHORITIES:		
Heritage Western Cape	<p>HWC response to the Notice of Intent (NID), letter dated 7 June 2019.</p> <p>Since there is reason to believe that the proposed Kleinkrantz Sand Quarry will impact on heritage resources, HWC requires that a Heritage Impact Assessment (HIA) that satisfies the provisions of section 38(3) of the NHRFA be submitted.</p> <p>The HIA must have specific reference to the visual impacts of the proposed development.</p> <p>The required HIA must have an integrated set of recommendations.</p>	<p>Noted.</p> <p>This was done.</p> <p>The HIA has an integrated set of recommendations (see Appendix 3).</p>
DE&DP: <i>Directorate Development Management (Region 3)</i>	<p>Letter dated 12 August 2019.</p> <p>2.1 The proposed site is adjacent to the Garden Route National Park. Please note that should the proposal involve any mining related activities inside the Garden Route National Park, the Department of Environment, Forestry and Fisheries should also be notified of the proposed development and provided an opportunity to comment on the proposal.</p> <p>2.2 Furthermore, according to Cape Farm Mapper, the vegetation that occurs on the site is classified as Southern Cape Dune Fynbos, which is listed as a vulnerable ecosystem. Whilst the DSR indicates that this vegetation type would normally be affected by sand mining activities, it mostly refers to alien vegetation and a few isolated thickets and fynbos mosaic pockets along the northern fence line boundary that would be impacted upon. In addition, the DSR further states that a Biodiversity Assessment will be conducted to map, in detail, the remaining remnants of natural vegetation and to prepare a detailed rehabilitation (restoration) plan for the buffer and the mining areas. It is however recommended that a botanist be appointed to undertake the Biodiversity Assessment, especially for plant search and rescue, since the aim is to rehabilitate the area to a natural state after mining has ceased. It would therefore be crucial to also determine the types of plant species currently present on the proposed site (including what is in the seedbank), so that these can be reintroduced after closure.</p> <p>2.3 The Plan of Study for EIA with reference to the Biodiversity Assessment should thus be amended to include the recommendations indicated in paragraph 2.2 above.</p> <p>2.4 Please note that all specialist reports must comply with Appendix 6 of the EIA Regulations, 2014. All specialist reports must contain details of the expertise of that specialist to compile a specialist report, including a curriculum vitae. Please ensure that all the specialist reports submitted with the EIA Report comply with this legislative requirement.</p>	<p>No mining activities are proposed within the GRNP. The DEFF was notified and provided with an opportunity to comment.</p> <p>Agreed.</p> <p>Agreed.</p> <p>Agreed.</p>

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<p>DEA&DP: <i>Directorate Pollution & Chemicals Management</i></p>	<p>2.5 It is noted that three site alternatives were investigated during the feasibility phase, but that the due diligence process have identified potential fatal flaws for two of the three sites. This Directorate is supportive of the identification and confirmation of the preferred site alternative through the detailed site selection process.</p> <p>2.6 Please ensure that the Planning Component of the Directorate: Development Management (Region 3) of this Department is included in the list of organs of state to comment on the proposal.</p> <p>3.1 Storm-water runoff must be controlled to ensure that on-site activities do not culminate in off-site pollution. The response to CapeNature's comments regarding the necessity for a storm water management plan is noted. This Directorate however recommends that a storm water management plan be included in the Draft EIA Report to accommodate a probable increase in runoff from the mining area. The storm water management plan must describe the proposed methods to prevent contaminated storm water from being released into the receiving environment. Attention must be focussed on measures aimed at preventing storm water runoff from the mine area into the designated buffer areas to the north and south.</p> <p>3.2 The proposed site is heavily infested with alien invasive vegetation. It is noted that the proposed rehabilitation and restoration plan, to be compiled by the biodiversity specialist, is of critical importance. Additional, detailed information is required on the proposed rehabilitation of the site, with emphasis on the removal of alien vegetation, including from the identified buffer areas. Given that the mine is anticipated to have a 20-year lifespan, it is not considered acceptable for established alien species to remain within these buffer areas for a further 20 years when they no longer form part of a plantation due to the change in land use on the property. (In this regard, also refer to paragraph 4.1 below.)</p>	<p>Noted.</p> <p>Agreed.</p> <p>A storm water management plan has been included in the EMPr.</p> <p>This is described in more detail in the EIA Report. The alien vegetation will act as a screen for the site establishment activities. Once mining operations have been established it will be possible to prepare a berm to act as a visual screen. Once the berm is vegetated, then it will be possible to progressively clear the alien vegetation in the buffer area.</p>
<p>DEA&DP: <i>Directorate Development Facilitation</i></p>	<p>4.1 The DSR indicates that a 60m wide buffer zone between the proposed sand quarry and the N2 National Road will be maintained and that the dense vegetation in the buffer zone will create a visual barrier to screen the proposed sand mining activities from the N2 National Road. The correspondence of SANParks dated 29 June 2019 indicated that the proposed site is infested with alien vegetation and that the proposal to use the dense (alien) vegetation as a visual screen, should be reconsidered. Per paragraph 3.2 above, the removal of alien vegetation must be addressed in the Biodiversity Assessment and the appointed specialist should provide recommendations for the removal of alien vegetation and establishment of indigenous vegetation in the scenic landscape.</p> <p>4.2 It is noted that the Activities 4 and 18 of Listing Notice 3 of the EIA Regulations, 2014 (as amended) are being applied for. Kindly be advised that only one of the listed activities (i.e. Activity 18) is applicable to the proposed development as section 4.1.1 of the DSR indicates that the road is existing and will be widened to accommodate haul vehicles. The applicability of Activity 18 must be confirmed in the Final Scoping Report ("FSR") to be submitted to the competent authority, the</p>	<p>This is described in more detail in the EIA Report. The alien vegetation will act as a screen for the site establishment activities. Once mining operations have been established it will be possible to prepare a berm to act as a visual screen. Once the berm is vegetated, then it will be possible to progressively clear the alien vegetation in the buffer area.</p> <p>SANRAL will prescribe the exact details of the road access. Correspondence is in progress with SANRAL Statutory Control.</p>

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DEA&DP: <i>Directorates Waste Management & Air Quality Management</i>	<p>dimensions by which the existing road will be widened and/or lengthened must be indicated, and the Application Form must be amended, if applicable.</p> <p>4.3 Section 4.1.2 of the DSR erroneously refers to the site as the Remainder of Portion 3 the Farm No. 121 (and not the Farm No. 191). This error must be corrected in the FSR to be submitted to the competent authority.</p> <p>5.1 These Directorates have no comments on the DSR and await the Draft EIA Report with Environmental Management Programme for detailed comments.</p>	<p>Noted. This error was corrected.</p> <p>Noted.</p>
DMR	<p>Letter dated 10 October 2019</p> <p>The Scoping Report was accepted and the applicant was instructed to proceed with the EIA process in accordance with the Plan of Study for EIA.</p>	<p>Noted.</p>
Cape Nature	<p>Letter dated 21 June 2019.</p> <p>1. CapeNature understands that any indigenous vegetation that requires removal will be rescued and used for rehabilitation purposes.</p> <p>All endangered species or protected species listed in Schedules 3 and 4 respectively, in terms of the WC Nature Conservation Laws Amendment Act, 2000 may not be picked or removed without the relevant permit. This is to ensure that rescued plant material is accounted for and used in the rehabilitation or relocation process. To obtain such permits please contact the George CapeNature Regional Office.</p> <p>2. CapeNature reminds the landowner that in terms of the Conservation of Agricultural Resources Act, 1983 ("CARA"), landowners must prevent the spread of alien invasive plants on the property. The level of alien infestation is therefore not be seen as reducing the sensitivity of a site, nor is the subsequent removal of alien vegetation from a property regarded as a mitigation measure due to this is being a legal requirement. Infestation by alien plants does not necessarily mean that an area is not important for biodiversity as some vegetation types are particularly prone to invasive alien infestation, but may recover when cleared of alien vegetation.</p> <p>3. In terms of the Alien and Invasive Species Regulations, NEM: BA, 2014, specific alien plant species (e.g. <i>Acacia mearnsii</i>) are either prohibited or listed as requiring a permit, aside from restricted activities concerning, inter alia, their spread, and should be removed. All alien trees such as <i>Acacia mearnsii</i> present at the property should be removed as they are a propagule source for</p>	<p>Yes, indigenous vegetation that requires removal will be rescued and used for rehabilitation.</p> <p>The applicant has been informed.</p> <p>The applicant is aware of this requirement.</p> <p>The applicant has been informed.</p>

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	<p>further spread of invasive alien plants.</p> <p>4. The Fynbos Forum Ecosystems Guidelines for Environmental Assessment in the Western Cape provides guidelines for the compilation of biodiversity specialist assessments. It is understood that a biodiversity specialist report will be compiled. This report will need to fully comply with de Villiers et al. (2016). CapeNature requires the report to address the following concerns:</p> <p>4.1. The Cape Floristic Region is largely a fire-dependent system and natural fire regimes must be maintained and managed in the landscape. The exclusion of fire from certain habitats will be considered unacceptable as this may ultimately cause the loss of species. Where appropriate, the location of fire-breaks should be indicated.</p> <p>4.2. All biodiversity impacts should be listed and rated accordingly. Of particular importance is habitat fragmentation and cumulative impacts. CapeNature recommends that the specialist rate this impact accordingly and also advise regarding the applicants use of fences. Activities which may cause fragmentation of Pas leading to loss of ecological connectivity are not supported by CapeNature.</p> <p>4.3. The specialist should also provide comment regarding how this development may reduce the size of the corridor round the GRNP and the impact this mine may have on such ecological processes.</p> <p>4.4. The BID mentions how the rehabilitation will be ongoing concurrently with mining activities. Rehabilitation of any disturbed ecosystems is only considered successful when the ecosystem has returned to an ecologically functional state and has a similar species assemblage as its natural state. Such applications must have a complete rehabilitation plan appended to submitted documentation.</p> <p>4.5 Ensure to comply with all relevant guidelines as pertaining to specialist study assessments. It should also be clear how much time the botanist spent on site or what season sampling was conducted or how much of the site was investigated?</p> <p>4.6. Clearing of alien vegetation will not be considered as a mitigation measure that offsets the environmental impact of a development, as this is a legal requirement.</p> <p>4.7. To maintain seed viability, topsoil stockpiles should be limited to a maximum of height of 1.5 m. These stockpiles should also be suitably marked to ensure these soils are not used for other purposes besides rehabilitation.</p> <p>5. Prior to the commencement of mining activities on the property, the number livestock grazing the farm must be reduced accordingly.</p> <p>6. Protected Area regions are areas delineated that are in a natural condition, which are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. As</p>	<p>Agreed.</p> <p>No fire-breaks are planned.</p> <p>Agreed.</p> <p>There is an existing fence between the GRNP and this property.</p> <p>Agreed.</p> <p>A rehabilitation plan is included in the specialist biodiversity assessment report.</p> <p>The site has been thoroughly investigated in 4 site visits during summer and spring.</p> <p>Noted.</p> <p>Agreed.</p> <p>There are no livestock grazing on the property.</p> <p>Although this may be a desired state in terms of WCBSF (2017), it is private property and</p>

Kleinkrantz Sand Quarry: EIA/ R and EMP/ R

NAME	ISSUES AND CONCERNS	RESPONSE
SANParks	<p>stipulated in the Land Use Advice (LUA) Handbook (Pool-Stanvliet et al. 2017). It should be noted that it is the landowner's responsibility to ensure his property is suitably maintained at a level consistent with LUA guidelines.</p> <p>7. The LUA Handbook can be downloaded from CapeNature's website and should be referred to.</p> <p>8. The farm is located within the WC BSP (2017) protected areas layer and therefore it is recommended that SANParks be approached for comment regarding the suitability of this proposed development.</p> <p>9. Using specialist findings, a detailed No-Go Areas map should be compiled and appended to the EMP/ R. The aim of this map is to sensitise the owner to the location of sensitive habitat relative to mine footprints. This will also empower the Environmental Control Officer (ECO) to ensure the strictest level of compliance regarding the protection of sensitive habitat.</p> <p>10. Concerning the vegetation and fire regime, CapeNature recommends that the applicant join the Southern Cape Fire Protection Association (FPA).</p> <p>11. A suitable stormwater management plan must be compiled to ensure that no erosion occurs on site or sediment rich runoff impacts any of the neighbouring habitat.</p> <p>Letter dated 21 June 2019.</p> <p>Remainder of Portion 3 of Farm 191 is in the buffer zone of the Garden Route National Park (GRNP), within the Wilderness Control Area and in the GRNP expansion footprint. Achieving a conservation outcome on this property is important to SANParks.</p> <p>SANParks takes note of the proposed 60 m wide buffer zone between the sand quarry and the N2 National Road and the 30 m buffer from the GRNP boundary.</p> <p>The property is invested by alien vegetation and a fire hazard. The proposal to use the dense vegetation (alien vegetation) for a buffer along the N2 is totally unacceptable.</p> <p>SANParks cannot support the proposal in its current format as there is a very limited conservation outcome of a 30m buffer. The property is degraded and neglected and not compliant with the</p>	<p>has not been proclaimed as a protected area.</p> <p>It is not in a natural condition.</p> <p>The land has been transformed by forestry, however it is planned to rehabilitate and restore the land so that its ecological state is improved.</p> <p>Noted.</p> <p>SANParks has provided a comment.</p> <p>Agreed.</p> <p>The applicant has been informed.</p> <p>As the area consists of dune sand it is likely that all rain water will sink into the sand. A stormwater management plan has been included in the EMP/ R.</p> <p>The applicant commits to achieving a conservation outcome.</p> <p>Noted.</p> <p>The alien vegetation in the buffer zone will be progressively cleared.</p> <p>A conservation outcome is achievable and this is documented in the EIA Report.</p>

Kleinkrantz Sand Quarry: EIAR and EMPr

NAME	ISSUES AND CONCERNS	RESPONSE
	<p>National Veld and Forest Fire Act, 1998, the Conservation of Agricultural Resources Act, 1983 ("CARA") and the Alien and Invasive Species Regulations, NEM: BA (2014),</p> <p>Details need to be provided of how transformation for a sand mine could contribute to biodiversity conservation in a priority natural area.</p> <p>A viable conservation corridor needs to be investigated, SANParks recommends at least a 50m buffer from the SANParks boundary and no transformation on the western side of the existing road.</p> <p>Screening from the N2 should be with natural vegetation only.</p> <p>Sand mining in a priority conservation area is not a compatible land use and if a serious conservation outcome cannot be achieved SANParks will have to object to the proposal.</p>	<p>The property is largely transformed but it should be possible to rehabilitate and restore it to a much better ecological state.</p> <p>The buffer with the GRNP has been increased to 60m and the remnant natural vegetation in the north-eastern corner has also been excluded from the mining area.</p> <p>The existing vegetation (including mature pine trees) cannot be removed instantaneously. The rehabilitation plan describes how the alien trees will be removed progressively and replaced with natural vegetation.</p> <p>A conservation outcome is achievable.</p>
<p>Department of Agriculture Western Cape</p>	<p>Letter dated 16 October 2019.</p> <p>The Western Cape Department of Agriculture has no objection to the proposed application with the following conditions:</p> <ul style="list-style-type: none"> • Put all measures in place to ensure proper post-mining rehabilitation of affected areas to as close to the original condition as possible. • Limit the visual impacts associated with mining. • Be careful not to damage agricultural infrastructure. • Allow day to day farming activities to continue unrestricted. • Take cognisance of objections from neighbouring farms. 	<p>Agreed. However, it is noted that there is no agricultural infrastructure or day to day farming activity on the property.</p>
<p>Department of Agriculture, Forestry and Fisheries. Forestry – Western Cape</p>	<p>Letter dated 18 June 2019.</p> <p>DAFF requests a specialist study describing:</p> <ol style="list-style-type: none"> i. The different vegetation types. ii. Biodiversity assessment of vegetation. iii. Impacts on vegetation biodiversity. iv. Vegetation species lists etc. 	<p>Agreed.</p>
<p>Department of Agriculture, Forestry</p>	<p>Letter dated 8 August 2019.</p>	

Kleinkrantz Sand Quarry: EIAR and EMPr

NAME	ISSUES AND CONCERNS	RESPONSE
Forestry – Western Cape	2. DAFF requests the following: a. According to the report the northern boundary consists of indigenous thicket vegetation. b. Section 15 of the National Forest Act prohibits the cutting, disturbing, damaging or destroying of protected tree species without a licence. Section 7 of the National Forest Act provides for the prohibition of the destruction of indigenous trees in any natural forest without a licence. c. DAFF supports the buffer zones on the northern and southern sides of the property; especially within the 30m buffer zone on the northern side which means that thicket vegetation should be retained. d. Applicant to contact DAFF timeously to apply for a licence under the NFA- should one be required. e. Suggest the landowner become a member of the Southern Cape Fire Protection Association – contact Fire Advisor Paul Gerber (044 302 6920); PaulGe@daff.gov.za regarding this.	Described by the biodiversity specialist. Noted. The buffer area on the northern side has been increased to 60 metres. Agreed. The landowner has been informed.
Breede Gouritz Catchment Management Agency (BGCMa)	Letter dated 30 August 2019. Based on the information provided in the scoping report, the proposed activities will have no significant impacts on surface water or groundwater. BGCMa acknowledges the mitigation measures that will be implemented to prevent erosion and to prevent or minimise contamination of water resources from hydrocarbons. The nearest water resource is Bo-Langvlei which has the characteristics of an estuarine ecosystem. Considering that the drainage in the area of the sand mine is towards the south and not towards the Bo-Langvlei, this activity will not require water use authorisation.	Noted. Noted.
George Municipality	Letter dated 24 June 2019. According to our records Farm 191/3 is zoned "Agriculture Zone 1" in terms of the George Integrated Zoning Scheme. Prospecting, mining and quarrying is not a primary land use in terms of the George Integrated Zoning Scheme By-Law, 2017. The applicant needs to submit the following development application to the George Municipality, Directorate: Planning & Development for evaluation and approval: -Consent in terms of Section 15(2)(o) of the Land Use Planning By-Law for a Quarry. If the application mentioned above is approved the approval will only be granted for a number of years, as determined by the Municipality.	Noted. An application for consent use will be submitted. Noted.

Kleinkrantz Sand Quarry: EIAR and EMPr

NAME	ISSUES AND CONCERNS	RESPONSE
SANRAL	<p>It is important to note that the Farm is situated within an environmental sensitive area and the applicant will also need to submit an OSCAE application (Oureniqua Sensitive Coastal Area Extension) to the George Municipality. For any enquiries with regards to the OSCAE, kindly contact Tamsin Makan.</p> <p>E-mail dated 15 July 2019</p> <p>The South African National Roads Agency SOC Limited (SANRAL) has received background information and a locality plan for this project and based on the proximity of the sand mine in relation to the National Road N2, it appears that SANRAL could be impacted by this development.</p> <p>Dust mitigation measures should be effective to ensure that dust plumes from the prevailing wind directions does not pose any safety risk to motorists. Stockpile areas should be strategically placed as not become windblown towards the N2.</p> <p>Provision should be made for weigh bridge facilities on the mining premises for trucks leaving the facility to control the additional loads that could negatively impact on our roads.</p> <p>Could you also indicate the number appearing on the nearest blue km marker board on N2.</p> <p>If services need to be constructed over or under the national road, (in this case the N2) or within 60m measured from the road reserve fence, the service owner must apply for a written permission from SANRAL, before any work may be carried out. Attached please find an application form for the proposed encroachment.</p>	<p>The OSCAE notice does not apply to mining activities.</p> <p>Noted.</p> <p>Dust mitigation measures are included in the EMPr.</p> <p>Provision has been made for a weigh bridge.</p> <p>The number is: N2-7/46.0X.</p> <p>Correspondence is in progress with SANRAL Statutory Control.</p>

9.3 Additional comments

All additional comments which are received during the 30 day consultation period required for the Environmental Impact Assessment Report (EIAR) and the EMPr will be submitted to the Competent Authority.

10. ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE ALTERNATIVES

(The description of the baseline environment should focus on the geographical, physical, biological, social, economic, heritage and cultural aspects)

10.1 Baseline environment

10.1.1 Geographical

The site is located 9.5 km east of the Wilderness and 11.5 km west of Sedgefield and is situated on the northern side of the N2 National Road.

The property slopes towards the south-west. The surface elevation is 90 to 95 metres above sea level on the northern ridge and 50 to 55 metres above sea level next to the N2 National Road. The property is densely vegetated with mature stands of pine and black wattle.

10.1.2 Climate

The site falls within the temperate coastal zone of the Southern Cape coast which is characterised by warm summers, cooler winters and rain throughout the year. Wind speeds are generally low.

The mean annual precipitation (MAP) varies between 600 and 900mm (mean: 757mm), with a slight peak in autumn and spring. The mean daily maximum and minimum temperatures are 25.3°C and 8.0°C for January and July respectively.

10.1.3 Soils and geology

The Wilderness dune cordons consist of steep-sided dune ridges separated by coastal lakes. In the Wilderness area, the preserved barrier dunes have all been constructed within the last three glacial/interglacial cycles.

Multiple phases of barrier dune construction occurred during sea level high stands, with evidence of sediment deposition on each individual barrier within both interglacials and subsequent interstadials.

Three major dune cordons are developed. The dune cordons form by accretion of transgressive dunefields and large compound imbricate dunes. The application area is located on a seaward-facing barrier dune.

The sediments are dominated by well sorted, symmetrically distributed sand-sized particles, typical of dune sand.

The cordons or barrier dune ridges have also been described as aeolianite covered with a variable thickness of Recent unconsolidated sand. The soils are of the Lamotte form.

10.1.4 Biodiversity

According to Mucina and Rutherford (2006) and the Western Cape Biodiversity Spatial Plan (WCBSBP, 2017), the vegetation type that would be affected by the proposed sand quarry is Southern Cape Dune Fynbos (FFd 11) which is considered to be vulnerable (WCBSBP, 2017).

In its natural state Southern Cape Dune Fynbos consists of fynbos heath dominated by sclerophyllous shrubs with a rich restio undergrowth. The alien *Acacia Cyclops* has often acted as a precursor for the establishment of thicket vegetation in sites where fynbos used to occur on coastal dunes.

In terms of vegetation and landuse / landcover the area is mapped in the DEA landcover layer 2014 (see **Figure 9**) as supporting Mature Plantation and Woodlot. This closely resembles the situation on site. The property consists of mature stands of pine and black wattle that appear to have been managed as a wood lot (fire wood collection) over time.

A few isolated thicket and fynbos mosaic pockets occur along the northern fence line boundary with the Garden Route National Park and on the north eastern property boundary.

The degraded nature of the site should not be used to limit biodiversity restoration targets and it is recommended that the post mining rehabilitation should be towards restoration of a thicket/fynbos mosaic of the local area.

A biodiversity assessment has been undertaken to assess the impact of the proposed mining activity and to prepare a detailed rehabilitation (restoration) plan for the buffer areas and the mining area (**see Appendix 2**).

Ramsar site

Certain interested and affected parties expressed concern about the proximity of the application area to a Ramsar Site.

“The Convention on Wetlands of International Importance especially as Waterfowl Habitat” - commonly referred to as the Ramsar Convention from its place of adoption in Iran in 1971 was the first of the modern global intergovernmental treaties on conservation and wise use of natural resources.

The Wilderness Lakes was designated as a Ramsar Site on 28 June 1991. The site is listed as 1ZA008.

The Information Sheet for the site designated to the “List of Wetlands of International Importance in terms of the Convention on Wetlands of International Importance especially as Waterfowl Habitat” may be found at www.ramsar.org. The Ramsar Information Sheet focuses on the Lakes Area itself and obviously the bird life.

The proposed sand mine is on the south side of the dune and is located well away from the lakes (500m) and the Ramsar Site.

The Information Sheet states that “The impoundment and abstraction of waters in the catchment, and hence reduction in the amount of fresh water entering the lakes poses the single greatest threat”. The proposed sand mine will not abstract any fresh water and also will not affect the mean annual run off (MAR) of rain water into Bo-Langvlei. The proposed sand mine will not result in any silt draining into Bo-Langvlei. It is therefore highly unlikely that the proposed sand mine will have any impact on the wetlands or “the waterfowl habitat” at all.

It is concluded that the proposed sand mine will not affect the Ramsar Status of the Wilderness Lakes.

10.1.5 Water resources

The application area is located in the K30D Quaternary Catchment and falls under the control of the Breede-Gouritz Catchment Management Agency (BGCMA).

There are no rivers, streams, wetlands or Freshwater Ecosystem Priority Areas (FEPAs) located within the proposed mining right area.

The proposed sand quarry is on a south-facing slope so there will be no storm water run-off from the mining area towards the north and the Garden Route National Park.

The groundwater in the area is described on the 1:500 000 hydrogeological map (Oudtshoorn 3320) and the explanation by P.S. Meyer (Department of Water Affairs and Forestry, 1999). The following are the more important lithological and groundwater characteristics in the coastal dunes between Wilderness and Buffels Bay:

- The Coastal Sands consist of a matrix of well-sorted, well-rounded fine-to medium-grained sand and beach sediments and occasional clay lenses. Sand thicknesses vary between 5 and 20m.
- Coastal Sands aquifers are phreatic and generally unconfined.
- Borehole and well yields generally vary between 0.2 and 4 litres/ second and only rarely exceed 5 litres / second. A borehole and well analysis indicates that 43% of boreholes and wells yield less than 2 litres / second and 7% yield more than 5 litres / second.
- Groundwater in the Coastal Sands has a sodium-chloride-calcium-alkaline nature (i.e. it is brackish).

The proposed sand mining operation is much higher than the groundwater water table and so will not affect the groundwater at all. Water is also not needed for the actual mining operation. The proposed sand quarry will not utilise any groundwater resources at all. The mining operation should, therefore, have minimal impact on the groundwater. Obviously care will have to be taken to minimise typical "construction type" point sources of groundwater contamination during the mining operations (e.g. oil spills, etc).

10.1.6 Socio-economic

The proposed Kleinkrantz Sand Quarry is located within Ward 4 of the George Municipal Area.

The George Municipality is a local municipality situated within the Garden Route. As of 2011 it had a population of 193 672 people. Its municipality code is WC044.

The strategic location of George along the N2 national road between Cape Town and Port Elizabeth facilitates the mobility of people, goods and services.

The municipality covers an area of 5 191 square kilometres in the Garden Route and Little Karoo regions.

According to the 2011 census the municipality has a population of 193 672 people in 53 551 households. Of this population, 50.4% describe themselves as "Coloured", 28.2% as "Black African", and 19.7% as "White". The first language of 67.2% of the population is Afrikaans, while 21.7% speak Xhosa and 8.1% speak English.

The majority of the residents of the municipality are in the city of George, which as of 2011 has a population of 157,394. Close to George are the coastal resorts of Herolds Bay (population 704) and Wilderness (population 6 164).

The key statistics provided by Stats SA for the George Municipal Area based on the statistics from the 2011 Census are shown in the following table:

Table 2: Key Statistics 2011 for the George Municipal area

Total population	193 672
Young (0-14)	26.3%
Working Age (15-64)	67.3%
Elderly (65+)	6.4%
Growth rate	2.59% (2001-2011)
Population density	37 persons/km ²
Youth unemployment rate	27.6%
No schooling aged 20+	3.9%
Higher education aged 20+	11.6%
Matric aged 20+	29.1%
Number of households	53 551
Number of Agricultural households	4 074
Female headed households	33.2%
Formal dwellings	83.9%
Housing owned/paying off	49%
Flush toilet connected to sewerage	82%
Weekly refuse removal	88.1%
Piped water inside dwelling	70.3%
Electricity for lighting	91%

The sectors that contribute the most to employment in the Garden Route District include the:

- Wholesale and retail trade, catering and accommodation sector (23.9 per cent)
- Finance, insurance, real estate and business services sector (17.3 per cent)
- Community, social and personal services sector (15.1 per cent)
- Agriculture, forestry and fishing sector (13.1 per cent)

(Source: Western Cape Government Provincial Treasury: Municipal Economic Review and Outlook 2018)

The Wilderness is the closest town to the project area. It is known for its long white sand beach and lagoons. The town caters mostly to holiday-makers and is situated directly on the Touw River Lagoon.

Kleinkrantz is a small coastal holiday village located 2.8 km west of the site. The coastal dunes between Kleinkrantz and Sedgefield are known as Paradise Ridge and this area is very popular with paragliders.

The northern boundary of the property is with the Garden Route National Park.

There are three other sand mines located in the Langvlei dunes area. These are located on Farm RE/5/191 (DenRon), Farm 83/189 (Stander) and Farm RE/28/189 (Sithembile Distributors).

The Botha & Barnard Furniture showroom is located 2 km east of the site on the way towards Sedgfield.

The area surrounding the proposed quarry is predominantly used for rural residential purposes, other sand mines and tourism related land uses.

10.1.7 Heritage and cultural aspects

A NID (or Notice of Intent) document was compiled and submitted to Heritage Western Cape.

HWC response to the Notice of Intent (NID) and stated that: "*Since there is reason to believe that the proposed Kleinkrantz Sand Quarry will impact on heritage resources, HWC requires that a Heritage Impact Assessment (HIA) that satisfies the provisions of section 38(3) of the NHRA be submitted*".

ASHA Consulting has compiled the HIA (**see Appendix 3a**) that also includes a specialist Visual Impact Assessment (VIA) (**Appendix 3b**).

10.1.8 Land uses and planning considerations

The property is zoned for agricultural purposes by the George Municipality. PVVK Management Services CC should ensure that the required land use approval is in place to allow mining on the property.

Marika Vreken Urban and Environmental Planners were appointed to consider the implications of the project in detail with respect to the relevant applicable planning instruments applicable e.g. Western Cape Provincial SDF (2014), Eden Spatial Development Framework (2017), George Municipal SDF (2019), Wilderness Lakes Hoekwil SDF (2015), and the George Municipality Integrated Development Plan (IDP).

The specialist town planning report is included as **Appendix 4**.

Outeniqua Sensitive Coastal Area (OSCA)

Parts of the Western Cape Coastline were declared Sensitive Coastal Areas (SCAs) by the Minister of Environmental Affairs and Tourism in terms of the Environment Conservation Act, 1989 (Act 73 of 1989). Private landowners require a permit if they plan to carry out activities which may be environmentally detrimental in terms of the SCA regulations.

Permits for controlled activities to be carried out by private landowners are issued by local authorities. The SCA regulations are generally aimed at small-scale activities at individual plot level. SCAs exclude activities listed under the EIA regulations. The SCA regulations also specifically exclude activities which are controlled by the Minerals Act, 1991 (Act 50 of 1991), which was replaced by the Mineral & Petroleum Resources Development Act, 2002 (Act 28 of 2002).

The Outeniqua Sensitive Coastal Area Extension (R.1526 of 27 November 1998) is therefore not applicable to this application for a sand mining right.

10.1.9 Description of specific environmental features and infrastructure on the site

Specific environmental features have already been described above.

10.1.10 Environmental sensitivity and current land use map

See **Figures 2, 4, 5 and 8.**

10.2 The impacts and risks identified for each alternative

(including the nature, significance, consequence, extent, duration and probability of the of the impacts, including the degree to which the impacts:- (aa) can be reversed, (bb) may cause irreplaceable loss of resources and (cc) can be avoided or mitigated)

(DMR: Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties)

The potential impacts and risks associated with each alternative are described in the following tables. The full assessment is provided in the Environmental Impact Assessment.

Table 3: Potential impacts and risks associated with the revised and preferred alternative

Aspect	Potential Impacts
Biodiversity	<p>The development of the proposed sand quarry will largely take place in transformed land. A specialist biodiversity assessment was undertaken to determine the significance of the potential impacts on biodiversity and to recommend appropriate mitigation measures.</p> <p>Post mining rehabilitation should be aimed at the restoration of the thicket/fynbos vegetation mosaic of the local area.</p>
Cultural and heritage resources	<p>HWC requires a Heritage Impact Assessment (HIA) with specific reference to the visual impacts of the proposed development.</p> <p>A specialist has conducted a Visual Impact Assessment (VIA) that has been incorporated into the overall HIA.</p>
Visual	<p>Farm RE3/191 is located north of the N2 National Road. There will be a 60 metre buffer area between the proposed sand mine and the N2. A specialist Visual Impact Assessment (VIA) of the project was prepared.</p>
Water resources	<p>The proposed activities will have no significant impacts on surface water or groundwater.</p>
Noise and dust	<p>Noise and dust impacts have been assessed during the EIA phase and the applicant will be required to comply with noise and dust control regulations.</p>
Socio-economic	<p>Building sand is required for all construction and development projects along the Garden Route. The site contains suitable resources of building sand.</p> <p>The proposed sand quarry will provide employment and the sand will be used by the building and construction sector.</p> <p>The town planning consultant has described the “need and desirability” of the project in the specialist town planning report.</p>

The potential impacts and risks associated with the “no go” alternative are shown in the following table:

Table 4: Potential impacts and risks associated with the “no go” alternative

Aspect	Potential Impacts
Biodiversity	No change. It is probable that the biodiversity status of the property would continue to deteriorate.
Cultural and heritage resources	No change.
Visual	No change.
Water resources	No change.
Noise and dust	No change.
Socio-economic	<p>PVVK Management Services CC will lose a carefully considered opportunity to start operations in the Garden Route.</p> <p>PVVK Management Services CC will forgo an opportunity to create employment and to generate an income from this project.</p> <p>Transport is a major component of the cost of bulk commodities like building sand. Increased transport costs for construction materials obtained from further away will add to the cost of these materials for the consumers.</p>

10.3 The methodology used in determining significance of potential impacts

The methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives is provided in the following tables:

Table 5: Nature and type of impact

Nature and type of impact	Description
Positive	An impact that is considered to represent an improvement to the baseline conditions or represents a positive change
Negative	An impact that is considered to represent an adverse change from the baseline or introduces a new negative factor
Direct	Impacts that result from the direct interaction between a planned project activity and the receiving environment / receptors
Indirect	Impacts that result from other activities that could take place as a consequence of the project (e.g. an influx of work seekers)
Cumulative	Impacts that act together with other impacts (including those from concurrent or planned future third party activities) to affect the same resources and / or receptors as the project

Table 6: Criteria for the assessment of impacts

Criteria	Rating	Description
Spatial extent of impact	National	Impacts that affect nationally important environmental resources or affect an area that is nationally important / or have macro-economic consequences
	Regional	Impacts that affect regionally important environmental resources or are experienced on a regional scale as determined by administrative boundaries or habitat type / ecosystems
	Local	Within 2 km of the site
	Site specific	On site or within 100 m of the site boundary
Consequence of impact (magnitude / severity)	High	Natural and/ or social functions and/ or processes are <i>severely</i> altered
	Medium	Natural and/ or social functions and/ or processes are <i>notably</i> altered
	Low	Natural and/ or social functions and/ or processes are <i>slightly</i> altered
	Very Low	Natural and/ or social functions and/ or processes are <i>negligibly</i> altered
	Zero	Natural and/ or social functions and/ or processes remain <i>unaltered</i>
Duration of impact	Temporary	Impacts of short duration and intermittent and/or occasional
	Short term	During the construction period
	Medium term	During part or all of the operational phase
	Long term	Beyond the operational phase, but not permanently
	Permanent	Mitigation will not occur in such a way or in such a time span that the impact can be considered transient (irreversible)

Table 7: Significance rating

Significance rating	Description
High	High consequence with a regional extent and long term duration. High consequence with either a regional extent and medium term duration or a local extent and long term duration. Medium consequence with a regional extent and long term duration.
Medium	High consequence with a local extent and medium term duration. High consequence with a regional extent and short term duration or a site specific extent and long term duration. High consequence with either a local extent and short term duration or a site specific extent and medium term duration. Medium consequence with any combination of extent and duration except site specific and short term or regional and long term. Low consequence with a regional extent and long term duration.
Low	High consequence with a site specific extent and short term duration. Medium consequence with a site specific extent and short term duration. Low consequence with any combination of extent and duration except site specific and short term. Very low consequence with a regional extent and long term duration.
Very low	Low consequence with a site specific extent and short term duration. Very low consequence with any combination of extent and duration except regional and long term.
Neutral	Zero consequence with any combination of extent and duration.

Table 8: Probability, confidence, reversibility and irreplaceability

Criteria	Rating	Description
Probability	Definite	>90% likelihood of the impact occurring
	Probable	70% – 90% likelihood of the impact occurring
	Possible	40% – 70% likelihood of the impact occurring
	Unlikely	<40% likelihood of the impact occurring
Confidence	Certain	Wealth of information on and sound understanding of the environmental factors potentially affecting the impact
	Sure	Reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact.
	Unsure	Limited useful information on and understanding of the environmental factors potentially influencing this impact
Reversibility	Reversible	The impact is reversible within 2 years after the cause or stress is removed.
	Irreversible	The activity will lead to an impact that is in all practical terms permanent.
Irreplaceability	Replaceable	The resources lost can be replaced to a certain degree
	Irreplaceable	The activity will lead to a permanent loss of resources

10.4 The positive & negative impacts that the proposed activity & alternatives will have

(The positive and negative impacts that the proposed activity and alternatives will have on the environment and the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects)

(DMR: Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties)

See **Section 10.2** of this report.

10.5 The possible mitigation measures that could be applied

(The possible mitigation measures that could be applied and the level of residual risk)

Mitigation involves selecting and implementing measures to protect the environment, the local community and other affected stakeholders from potentially adverse impacts as a result of mining. Such impacts may be identified during an EIA or as part of the routine operational or monitoring activities of mining companies. The aim is to prevent adverse impacts from happening or, where this is impractical, to limit their significance to an acceptable level.

Rehabilitation refers to the measures that are undertaken to return mined land to agreed post-closure uses. It differs from mitigation insofar as it implicitly recognizes that impacts on the environment have occurred.

Mitigation is concerned with identifying and implementing measures to safeguard the environment and any affected stakeholders from potentially adverse impacts of mining. Ideally, the aim is to prevent adverse impacts from occurring or, if this is not possible, to limit their significance to an acceptable level. A number of categories of mitigation and a hierarchy of their desirability are illustrated below. These include (in descending order of priority):

Table 9: Hierarchy for mitigation measures

Avoid	Alternative sites or technologies to avoid impacts
Minimise	Actions to minimise impacts during planning, prospecting, construction, mining etc.
Rectify	Actions to rehabilitate or restore the affected environment

Avoidance is the preferred option, and results in no impact on the environment, the local community or other stakeholders. Actions to minimise impacts are second in terms of desirability, and might include changes in the routing of access roads or operational or layout changes.

Possible mitigation measures are listed in the following table:

Table 10: List of possible mitigation measures that could be applied

Aspect	Possible Mitigation Measure
Topography	Ensure that final slopes are kept at an angle of 1:2.5 or less. Ensure that the rehabilitated areas are landscaped to ensure that there are no sharp “corners” and that even rounded slopes are created that blend in with the surrounding area.
Topsoil	The topsoil should be carefully stockpiled and should be placed on the land in the mined out areas during the rehabilitation and restoration process.
Vegetation	<p>The remaining thicket and fynbos mosaic pockets occur along the northern and north-eastern property boundaries have been taken into account to determine an appropriate conservation corridor adjacent to the GRNP. This should be a “no go” areas for mining activities.</p> <p>Comply with the management measures recommended by the specialist, including:</p> <ul style="list-style-type: none"> • Plant search and rescue • Post mining rehabilitation should be aimed at the restoration of the thicket/fynbos vegetation mosaic of the local area. • Invasive alien vegetation control and management.
Animals	If any animals are encountered during the mining operations they must not be killed or injured, but rather removed from the site (by a suitably trained nature conservation officer, if necessary).
Water resources	<p>Rehabilitate slopes and restore natural vegetation over mined areas, as soon as possible to prevent erosion.</p> <p>Establish EMP procedures to prevent and minimise contamination from hydrocarbon spills.</p>
Dust	<p>Establish EMP procedures to minimise the generation of dust.</p> <p>Minimise areas to be cleared at any one time.</p> <p>Ensure vehicles keep to a speed limit.</p> <p>Rehabilitate and revegetate, as soon as possible</p> <p>Use wood chips or commercial dust binders on roads.</p> <p>Reduce activities during strong winds.</p>
Noise	<p>Ensure vehicles are maintained.</p> <p>Restrict work to operating hours.</p>
Heritage Resources	Should heritage resources (e.g. fossils or human remains) be disturbed or uncovered, these should be reported to Heritage Western Cape.

Aspect	Possible Mitigation Measure
Visual impact	Comply with recommendations made in the VIA. Utilise trees or earth berms to ensure that the sand mining activities are not visible from the N2 National Road.

10.6 Motivation where no alternatives were considered

(If no alternative development locations were investigated, the motivation for not considering such)

Alternatives have been considered.

10.7 Concluding statement on alternatives

(a concluding statement indicating the preferred alternative development location within the approved site)

The company is currently operating in the West Coast areas of the Swartland and Saldanha Bay. The company supplies materials to the construction industry and requires viable mineral resources in order to sustain its business.

The company has identified the Southern Cape area as a region with an on-going demand for construction materials. For more than 5 years the company has been investigating potential sites. The company has evaluated numerous sites between Knysna and Riversdale. Many of these alternatives were rejected at an early stage due to the identification of potential fatal flaws e.g. the mineral resources did not comply with customer specifications or the site was located in an environmentally sensitive area.

The Langvlei Dunes area contains suitable resources of building sand and it is an established sand mining area. There are currently three other sand mines in the area. The site is well located to supply sand for construction and development projects to the entire area situated between Knysna and George.

The company investigated two other properties in the Langvlei Dunes area i.e. RE/Erf 1288 Kleinkrantz (Alternative 1) and Portion 5 of the Farm Boven Lange Valley 189 (Alternative 2) before the Remainder of Portion 3 of Farm 191 (Alternative 3) was purchased (**see Figures 8 and 9**).

During the due diligence process for Alternative 1 it was noted that the southern half of the property is mapped as a Critical Biodiversity Area (CBA) whilst most of the rest of the property is mapped as an Ecological Support Area (ESA). There is no existing access to the N2 National Road and the property is located on a bend in the National Road which means that any access would be dangerous. It was concluded that Alternative 1 was not a viable alternative.

Alternative 2 (Farm 5/189) is located adjacent to the Botha & Barnard furniture company. This potential site is 26.2 hectares in size, with good access from the N2 National Road and was considered to be a very attractive target. As part of the due diligence, HilLand Environmental was appointed to compile a botanical sensitivity report of the property. HilLand Environmental concluded that the remaining natural vegetation on site has a HIGH sensitivity and conservation value. Most of the site is mapped as a Critical Biodiversity Area (CBA) and therefore it was decided not to purchase the property.

Subsequently, Alternative 3 (RE/3/191) came onto the market. In terms of vegetation and landuse / landcover the area is mapped in the DEA landcover layer 2014 (**see Figure 9**) as supporting Mature Plantation and Woodlot. This closely resembles the situation on site. The property consists of mature stands of pine and black wattle that appear to have been managed as a wood lot (fire wood collection) over time.

A few isolated Coastal Thicket and Fynbos Mosaic pockets occur along the northern fence line boundary with the Garden Route National Park and on the north eastern property boundary.

This site was selected because it is located on transformed land and has not been mapped as a Critical Biodiversity Area. Furthermore, with an adequate buffer in place between the proposed mining area and the N2 National Road it should be possible to ensure that the visual impact is limited.

The property currently supports very little of the remaining natural vegetation and so there is an opportunity for the company to restore natural vegetation back onto the land after mining and to improve the ecological condition of the property.

Alternative 3 was therefore selected and it was decided to purchase the property.

Further studies have been undertaken during the EIA phase to refine the details of the mining area on the property. This included specialist biodiversity and visual impact assessments.

The extent of the proposed mining area has been reduced and the mining layout has been revised based on the findings of the specialist studies.

The “revised and preferred alternative” takes into account location alternatives, activity alternatives, layout alternatives, technology alternatives and operational alternatives.

11. SPECIALIST FINDINGS

(a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations) and an indication as to how these findings and recommendations have been included in the final assessment report)

11.1 Biodiversity assessment and rehabilitation plan

The Biodiversity Assessment and Rehabilitation plan was prepared by Cathy Avierinos of HillLand Environmental (**see Appendix 2**).

The site survey revealed that the site is mostly transformed plantation and alien woodlot used for firewood collection. Limited areas of the natural Mosaic of Dune Fynbos and Dune Thicket remain on the property along the northern boundary with the Garden Route National Park (GRNP) and along the north-eastern boundary.

Although the property is highly transformed the recommended end use outcome would be to restore the natural vegetation of the area and hence contribute to the conservation restoration targets.

The potential impacts on vegetation as well as the proposed mitigation measures were summarised by the specialist in the following table:

Impact	Proposed mitigation	Outcome
Loss of areas of remaining natural vegetation and protected species	Protect the remaining areas of natural vegetation through avoidance. Make use of existing N2 access and not create a new access. Join the local conservancy to ensure that the conservation outcomes with rehabilitation are reached.	Include in buffer areas and become part of the larger conservation outcome initiative.
Loss of habitat connectivity	Retain buffers and fence off from the active mining area phase to allow uninterrupted habitat connectivity through the buffers to surrounding corridors. Join the local conservancy to ensure that the conservation outcomes remain a priority after mining.	Maintaining buffers and connectivity. Part of the overall larger conservation outcome initiative.
Loss of potential endangered / protected species	Retain majority of protected species within the buffer zones proposed. Transplant from the active mining phase into the rehabilitation areas or buffer zones with a DAFF permit. Remove alien vegetation from the areas to allow time before mining for any endangered species to emerge and then be rescued and relocated to the surrounding rehabilitation area or buffer zone. Protect all topsoil for use in the rehabilitation of the preceding phase.	Avoid and protect where possible and rehabilitation where avoidance is not possible.
Dust created by machinery and trucks transporting sand being deposited on surrounding vegetation.	Limit dust through management of haul roads and exposed areas.	Dust suppression.

The significance of the impacts on biodiversity after mitigation were rated as “medium to low” assuming the implementation of all the recommended rehabilitation and the protection of the buffer zones.

The specialist report also included a detailed “Rehabilitation Plan and an Alien Control Plan”.

The specialist assessment of the site has indicated the areas which are to be avoided and provided recommendations and mitigation measures for the rehabilitation and alien management of the mining area and the buffers.

It is the opinion of the biodiversity specialist that mining this site will not lead to irreplaceable loss of resources and should the mitigation and rehabilitation measures be followed as recommended the property will contribute to the long-term conservation outcome that is required for the area and specifically as requested by SANParks and the Paradise Ridge Conservancy (PRC).

It is recommended that the landowner and mining operator become members of the PRC in order to ensure that the Conservation Outcomes remain a high priority in the mining operation and the long-term goals for conservation of the area in general are entrenched in the principles of the mining operation itself.

In addition it is recommended that the landowner becomes a member of the Southern Cape Fire Protection Association (FPA) in order to receive the required guidance and advice in relation to fire breaks on the property.

These findings and recommendations have been included in the environmental impact assessment and EMPr.

11.2 Heritage Impact Assessment (HIA)

The overall Heritage Impact Assessment (HIA) was prepared by Dr Jayson Orton of ASHA Consulting (**see Appendix 3a**)

The specialist Visual Impact Assessment (VIA) (**see Appendix 3b**) was prepared by Quinton Lawson (Architect) and Bernard Oberholzer (Landscape Architect).

While there would be a very small chance of fossils, archaeological material or unmarked graves being present, the main sensitive heritage resources identified are the N2 (Garden Route) as a scenic route to the south, the Garden Route National Park (GRNP) to the north and the wider cultural landscape including the large Pleistocene dune ridge on which the site is located.

Fossils, archaeological material or unmarked graves might experience direct impacts during mining but the chances of impacts occurring are negligible. The N2 National Road, GRNP and wider cultural landscape might all experience visual impacts through degradation of their scenic and rural contexts. Mitigation measures have been proposed and included in the project design (which was amended from the original layout) in order to reduce visual impacts. The quarry is not expected to be visible at all from the GRNP to the north, while it would only be glimpsed from the N2 to the south. The VIA shows that the extent of visual impacts will be very limited due to both topography and local screening (i.e. foreground vegetation and structures).

The significance of potential impacts to archaeological and palaeontological resources was assessed to be “very low”.

The significance of the visual impacts associated with the proposed Kleinkrantz Sand Quarry was assessed to be “medium to low”, assuming implementation of buffers and mitigation measures.

The following conditions of approval were recommended in the HIA:

- A fossil chance finds procedure must be included in the EMPr;
- It must be ensured that the berm is not revealed by alien vegetation clearing until such time as it has been vegetated;
- To avoid drawing attention, the entrance gate should be left as it is currently;
- If a sign is required then it should be as small and unobtrusive as possible; and
- If any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

The following specific mitigation measures to minimise the visual impacts were recommended in the VIA:

- The buffer on the northern boundary with the National Park should be 60m, the purpose being to retain the visual integrity of the existing ridgeline, which separates the proposed mining activity from the National Park.
- The buffer (boundary pillar) on the eastern boundary to be 60m in the northern section, as currently proposed, reducing to 9m in the southern section.
- The mature trees that screen the property should be retained during the mining operation, and phased out as part of the successive rehabilitation of the site. Only local species should be used in the rehabilitation work.
- The life of the sand mine should be as short as possible, (obviously relating to demand for sand), to enable the early rehabilitation of the site, thereby minimising long term visual impact on the rural character and sensitive receptors of the area.
- Mining activities to be during normal working hours only.
- Rehabilitation of the site after the operational phase as contained in the EMPr.
- Only essential direction signage to be provided at the entrance to the site on the N2 National Road, and no billboards to be permitted.

These findings and recommendations have been included in the environmental impact assessment and EMPr.

11.3 Town planning report

Marika Vreken Urban and Environmental Planners was appointed to consider the implications of the project in detail with respect to the applicable planning instruments e.g. Western Cape Provincial SDF (2014), Eden Spatial Development Framework (2017), George Municipal SDF (2019), Wilderness Lakes Hoekwil SDF (2015), and the George Municipality Integrated Development Plan (IDP). The specialist town planning report is included as **Appendix 4**.

The objective of the Specialist Planning Report was to provide a description of the proposed development and to “contextualize” the envisaged project within the administrative, legal and policy planning framework. The planning report also describes the “need and desirability” of the proposal.

It was the considered opinion of the Town Planning specialist that the proposed development will achieve a sensitive balance between the natural environment, the built environment, and the social economic environment.

12. ENVIRONMENTAL IMPACT ASSESSMENT

12.1 Description of the process to identify, assess and rank impacts

(As prescribed in Appendix 3 of the EIA Regulations, 2014)

(a full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred location (in respect of the final site layout plan) through the life of the activity, Including- (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures)

An assessment of each potentially significant impact and risk:

(including- (i) cumulative impacts, (ii) the nature, significance and consequence of the impact and risk, (iii) the extent and duration of the impact and risk occurring, (iv) the probability of the impact and risk occurring, (v) the degree to which the impact and risk can be reversed, (vi) the degree to which the impact and risk may cause irreplaceable loss of resources, and (vii) the degree to which the impact and risk can be avoided, managed or mitigated)

A full description and assessment of the environmental impacts and risks associated with the “preferred alternative” is provided below:

12.2 Biodiversity

Introduction

The property is located between the Garden Route National Park (GRNP) and the N2 National Road.

Ground truthing of the site has confirmed that this site is totally transformed, with the exception of a few remaining clusters of Coastal Thicket and Fynbos Mosaic along the northern and north-eastern boundary. The bulk of the vegetation on the property consists of mature pine and mature stands of Black Wattle that appear to have been managed as a wood lot (fire wood collection) over time.

Potential impacts

Potential impacts on vegetation include the following:

- Loss of areas of remaining natural vegetation and protected species;
- Loss of habitat connectivity;
- Loss of potential endangered / protected species; and
- Dust created by machinery and trucks transporting sand being deposited on surrounding vegetation.

The noise and vibration caused by the earthmoving equipment will disturb smaller animals (e.g. birds, snakes and moles). These will move away whilst operations are in progress.

Table 11: Biodiversity: summary of impact assessment

Potential impacts on biodiversity:	
Nature of impact:	Negative and direct
Extent of impact:	Site specific
Consequence of impact:	Low
Duration of impact:	Medium term for the duration of mining in any

	particular phase
Probability of occurrence:	Definite
Confidence:	Certain
Degree to which the impact can be reversed:	Reversible after the operational phase in each mining phase through rehabilitation
Degree to which the impact may cause irreplaceable loss of resources:	No irreplaceable loss of resources. Areas supporting viable vegetation communities are to be avoided in the buffer zones and the rehabilitation of habitat on completion of each phase will see long term return of the resource.
Significance rating of impact prior to mitigation (Neutral, Very Low, Low, Medium, or High)	Medium
Significance rating of impact after mitigation (Neutral, Very Low, Low, Medium, or High)	Medium to low

Discussion

The proposed aim of rehabilitation is to restore the natural dune thicket and fynbos mosaic vegetation of the area.

In terms of long-term conservation outcome commitment, the following has been agreed to by the landowner and operator:

“PVVK Management Services CC and the landowner commit upfront to the conservation outcomes for the sand quarry and are willing to consider joining the Paradise Ridge Conservancy. This will ensure the long-term conservation outcomes as part of a sustainable quarry operation and can involve the PRC in playing an active role in the rehabilitation successes at the proposed quarry.”

Proposed mitigation measures

The proposed mitigation measures to further avoid or minimise the impact of the project on biodiversity are listed below:

- Retain a 60m buffer zone with the GRNP.
- Retain a 60m buffer zone on the north eastern boundary that corresponds with the vegetation surveyed.
- Retain a 60m buffer zone along the N2 and rehabilitate this to indigenous vegetation as part of the first phase of mining.
- In order to ensure the integrity of the visual buffer along the N2 the alien clearing is to be phased as described in the alien invasive plant control plan.
- Retain the existing N2 access and do not open up an alternative access.
- Fence the buffer areas off so that there is no possible encroachment from the mining area into the buffer zones and to ensure that these areas have no change in connectivity with the neighbouring properties.
- Alien clearing to commence and to be completed in accordance with the alien invasive plant control plan.
- Rehabilitation to be phased to take place as each phase is completed in accordance with the rehabilitation plan.
- Owner and operator of the sand mine to join the local Conservancy to ensure continued involvement in the conservation outcomes planned for the area.
- Monitoring of alien clearing and rehabilitation to form part of the Mining compliance monitoring.
- An ECO is recommended with rehabilitation specialist knowledge.
- Rehabilitation and alien clearing must be successfully completed in each phase before mining continues to a new phase.
- The buffer areas are to be treated as “no go” areas for mining activities and alien

vegetation must be progressively cleared from the buffer areas.

- If any animals are encountered during the mining operations they must not be killed or injured, but rather removed from the site (by a suitably trained nature conservation officer, if necessary).

12.3 Water resources

Introduction

There are no rivers, streams or wetlands in the mining right area. The site does not overlie an important aquifer.

Potential impacts

Potential impacts of a sand mining operation on water resources could include soil erosion, ponding of water or pollution from hydrocarbon spills.

Table 12: Water resources: summary of impact assessment

Potential impacts on water resources:	
Nature of impact:	Negative and direct
Extent of impact:	Site specific
Consequence of impact:	Low
Duration of impact:	Temporary
Probability of occurrence:	Unlikely
Confidence:	Sure
Degree to which the impact can be reversed:	Reversible
Degree to which the impact may cause irreplaceable loss of resources:	Replaceable
Significance rating of impact prior to mitigation (Neutral, Very Low, Low, Medium, or High)	Low
Significance rating of impact after mitigation (Neutral, Very Low, Low, Medium, or High)	Very low

Discussion

No groundwater resources will be used by this mining operation. No mining is planned within any watercourses.

Proposed mitigation measures

The proposed mitigation measures to avoid or minimise the impact of the project on water resources are listed below:

- Establish EMP procedures to prevent and minimise contamination from hydrocarbon spills.
- Only strip topsoil when necessary and comply with all topsoil mitigation measures.
- Rehabilitate the mined areas and revegetate as soon as possible.

12.4 Dust

Introduction

Dust is a standard aspect that needs to be assessed for mining projects. The largest proportion of dust particles generated from surface mining activities is larger than 30 µm in size and these normally deposit within 100m of the source.

Potential impacts

Windblown dust may occur during all phases of the project (e.g. clearing, mining, loading and rehabilitation). Impacts may be aggravated during high wind conditions.

Table 13: Dust: summary of impact assessment

Potential dust impacts	
Nature of impact:	Negative and direct
Extent of impact:	Site specific to local
Consequence of impact:	Low
Duration of impact:	Medium term
Probability of occurrence:	Probable
Confidence:	Sure
Degree to which the impact can be reversed:	Reversible
Degree to which the impact may cause irreplaceable loss of resources:	n/a
Significance rating of impact prior to mitigation (Neutral, Very Low, Low, Medium, or High)	Low
Significance rating of impact after mitigation (Neutral, Very Low, Low, Medium, or High)	Very low

Discussion

The applicant must ensure that all activities comply with the NEM: Air Quality Act (Act 39 of 2004) and the National Dust Control Regulations (GN R827 of 2013).

Noise and Dust are Occupational Health and Safety issues for mine workers. These are controlled via the Mine Health and Safety Act, 1996 (Act 29 of 1996). The employer is required to:

- supply all the necessary health and safety equipment to each employee;
- provide regular health and safety training;
- establish a system of medical surveillance;
- conduct occupational hygiene measurements; and
- assess and control risks.

Proposed mitigation measures

The proposed mitigation measures to avoid or minimise impacts related to windblown sand and dust are as follows:

- To comply with EMPr procedures to minimise the generation of dust.
- To minimise the size of areas to be cleared at any one time.
- To rehabilitate and revegetate mining areas as soon as mining is completed.
- To ensure vehicles keep to the speed limit.
- To reduce or stop mining activities during very strong winds.

12.5 Noise

Introduction

Noise is a standard aspect that is assessed for mining projects.

Potential impacts

Noise will be created by the earthmoving equipment, the mobile screening plant and haul trucks. The proposed Kleinkrantz Sand Quarry is located north of the N2 National Road which is a major arterial route for traffic. There is a continuous background noise level associated with the constant traffic flow along the N2 National Road.

Table 14: Noise: summary of impact assessment

Potential noise impacts:	
Nature of impact:	Negative and direct
Extent of impact:	Local

Consequence of impact:	Low
Duration of impact:	Medium term
Probability of occurrence:	Definite
Confidence:	Certain
Degree to which the impact can be reversed:	Reversible
Degree to which the impact may cause irreplaceable loss of resources:	Not applicable
Significance rating of impact prior to mitigation (Neutral, Very Low, Low, Medium, or High)	Low
Significance rating of impact after mitigation (Neutral, Very Low, Low, Medium, or High)	Very low

Discussion

Noise generated during mining and rehabilitation operations must comply with the Western Cape Noise Control Regulations (Provincial Notice 200/2013 of 20 June 2013).

The size of the active mining area will be limited in relation to the overall size of the property. Noise associated with the mining activity will not negatively impact on activities on any of the surrounding properties.

Noise and Dust are Occupational Health and Safety issues for mine workers. These are controlled via the Mine Health and Safety Act, 1996 (Act 29 of 1996). The employer is required to:

- supply all the necessary health and safety equipment to each employee;
- provide regular health and safety training;
- establish a system of medical surveillance;
- conduct occupational hygiene measurements; and
- assess and control risks.

Proposed mitigation measures

The proposed mitigation measures to avoid or minimise noise related impacts are as follows:

- Ensure all equipment and vehicles are well maintained.
- Restrict work to standard operating hours only.
- Comply with the occupational hygiene requirements.
- The visual berm will help to screen off noise from the quarry activities.
- The conventional type reverse signal should be replaced with a low frequency type signal.
- Speed limits should be enforced along the access road.
- Silencers should be installed and maintained on machinery, trucks and earth moving equipment.
- No amplified music will be allowed on the site.

12.6 Solid waste

Introduction

Solid waste is not a significant aspect for this project, however this aspect is assessed for completeness.

Potential impacts

Potential impacts may be associated with litter left by mine workers or if empty containers are left on site.

Table 15: Solid waste: summary of impact assessment

Potential solid waste impacts:	
Nature of impact:	Negative and direct
Extent of impact:	Site specific
Consequence of impact:	Very low
Duration of impact:	Temporary
Probability of occurrence:	Possible
Confidence:	Sure
Degree to which the impact can be reversed:	Reversible
Degree to which the impact may cause irreplaceable loss of resources:	Not applicable
Significance rating of impact prior to mitigation (Neutral, Very Low, Low, Medium, or High)	Very low
Significance rating of impact after mitigation (Neutral, Very Low, Low, Medium, or High)	Very low

Discussion

The mining activity itself will not generate any solid waste.

It is possible that minor solid waste may be generated if equipment is serviced (e.g. containers for lubricants and hydraulic fluid or packaging for spare parts).

The mine workers could potentially generate a small amount of solid waste (e.g. food wrapping paper and tins).

Proposed mitigation measures

The proposed mitigation measures to avoid or minimise impacts associated with solid waste are as follows:

- An integrated waste management approach, which is based on waste minimisation and incorporates reduction, recycling, re-use and disposal, where appropriate, must be used.
- Provide all workers with environmental awareness training.
- Provide a bin at the temporary site office / container.
- Regularly dispose of any solid waste at a municipal waste disposal site.
- Ensure all workers comply with the requirements of the EMPr.

12.7 Heritage Resources

Introduction

A specialist Heritage Impact Assessment (HIA) was completed by Dr Jayson Orton of ASHA Consulting (**see Appendix 3a**). The HIA has incorporated the findings of the Visual Impact Assessment (VIA) prepared by Quinton Lawson (Architect) and Bernard Oberholzer (Landscape Architect) (**see Appendix 3b**).

Potential impacts

Fossils, archaeological material or unmarked graves might experience direct impacts during mining but the chances of impacts occurring are negligible. The N2 National Road, the Garden Route National Park (GRNP) and wider cultural landscape might all experience visual impacts through degradation of their scenic and rural contexts.

Mitigation measures have been proposed and included in the project design (as amended from the original layout) in order to reduce visual impacts. The quarry is not expected to be visible at all from the GRNP to the north, while it would only be glimpsed from the N2 National Road to the south. The VIA shows that the extent of visual impacts will be limited, due to both topography and local screening (i.e. foreground vegetation and structures).

The potential impacts to archaeological / palaeontological resources and to the cultural landscape and the N2 National Road scenic route (i.e. visual impacts) are assessed in the following tables:

Table 16: Archaeological and Palaeontological Resources: summary of impact assessment

Potential impacts (archaeology & palaeontology):	
Nature of impact:	Negative and direct
Extent of impact:	Site-specific
Consequence of impact:	Very low
Duration of impact:	Permanent
Probability of occurrence:	Unlikely
Confidence:	Certain
Degree to which the impact can be reversed:	Irreversible
Degree to which the impact may cause irreplaceable loss of resources:	Irreplaceable
Significance rating of impact prior to mitigation (Neutral, Very Low, Low, Medium, or High)	Very low
Significance rating of impact after mitigation (Neutral, Very Low, Low, Medium, or High)	Very low

Table 17: Cultural landscape and scenic route (i.e. visual): summary of impact assessment

Potential impacts (visual):	
Nature of impact:	Negative and direct
Extent of impact:	Local - only within viewshed
Consequence of impact:	Medium
Duration of impact:	Medium term, during operational period
Probability of occurrence:	Definite
Confidence:	Certain
Degree to which the impact can be reversed:	Reversible after the operational period, with rehabilitation
Degree to which the impact may cause irreplaceable loss of resources:	Nothing of major significance. Site can be rehabilitated. Benefit of removal of alien vegetation.
Significance rating of impact prior to mitigation (Neutral, Very Low, Low, Medium, or High)	Medium
Significance rating of impact after mitigation (Neutral, Very Low, Low, Medium, or High)	Medium to low

Discussion

The chances of significant impacts occurring to fossils, archaeological material or unmarked graves are negligible.

No major features of visual or scenic significance on the site will be lost during the operation of the sand quarry, provided that the buffers from the N2 in the south and on the site boundaries are observed.

Proposed mitigation measures

The following conditions of approval were recommended in the HIA:

- A fossil chance finds procedure must be included in the EMPr;
- It must be ensured that the berm is not revealed by alien vegetation clearing until such time as it has been vegetated;

- To avoid drawing attention, the entrance gate should be left as it is currently;
- If a sign is required then it should be as small and unobtrusive as possible; and
- If any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

The following specific mitigation measures to minimise the visual impacts were recommended in the VIA:

- The buffer on the northern boundary with the National Park should be 60m, the purpose being to retain the visual integrity of the existing ridgeline, which separates the proposed mining activity from the National Park.
- The buffer (boundary pillar) on the eastern boundary to be 60m in the northern section, as currently proposed, reducing to 9m in the southern section.
- The mature trees that screen the property should be retained during the mining operation, and phased out as part of the successive rehabilitation of the site. Only local species should be used in the rehabilitation work.
- The life of the sand mine should be as short as possible, (obviously relating to demand for sand), to enable the early rehabilitation of the site, thereby minimising long term visual impact on the rural character and sensitive receptors of the area.
- Mining activities to be during normal working hours only.
- Rehabilitation of the site after the operational phase as contained in the EMPr.
- Only essential direction signage to be provided at the entrance to the site on the N2 National Road, and no billboards to be permitted.

12.8 Socio-economic

Introduction

Building sand is a basic construction material required for construction and development projects. These are low cost but high bulk materials. A significant proportion of the total cost of construction materials is related to the transport distance from a mine to a development site. This site is very conveniently located to provide building sand for projects in the Garden Route area.

Potential impacts

The mine will provide direct employment for mine workers and indirect employment for truck drivers who will transport the material to construction sites. The provision of construction material is PVVK Management Services CC's core business. This project will secure mineral resources for PVVK Management Services CC and help to sustain its business.

The rehabilitation of the mining area will improve the ecological state of the area and restore natural vegetation to the site.

Table 18: Socio-economic: summary of impact assessment

Potential impacts on socio-economic environment:	
Nature of impact:	Positive – Direct and indirect
Extent of impact:	Local to regional
Consequence of impact:	Medium
Duration of impact:	Medium term
Probability of occurrence:	Definite
Confidence:	Certain

Degree to which the impact can be reversed:	n/a
Degree to which the impact may cause irreplaceable loss of resources:	n/a
Significance rating of impact prior to mitigation (Neutral, Very Low, Low, Medium, or High)	Medium (+ve)
Significance rating of impact after mitigation (Neutral, Very Low, Low, Medium, or High)	Medium (+ve)

Discussion

The mining project will not only have a positive socio-economic impact during the life of the mine. Construction and development projects in the area that make use of the sand will have a long term positive socio-economic benefit for the region.

Good housekeeping and compliance with the requirements of the EMPr are required to minimise any local short-term impacts on the neighbours.

Proposed mitigation / enhancement measures

- Ensure compliance with the requirements of the EMPr and the rehabilitation of the land.
- Maintain normal working hours.
- Ensure no dumping of rubble.
- Maintain communications with I&APs and keep a “Complaints Register” on site.

12.9 Access road

Introduction

There is an existing access position to the property from the N2 National Road. This is referred to by SANRAL as Access #047. This is situated at the boundary of RE/2/191 and RE/3/191. This access incorporates the required turning lanes from the N2 National Road and was used for many years when the sand mine was operating on RE/2/191 (**see Figures 4 and 5**). It would be fairly simple to modify and widen the design of Access #047 so that it would be suitable to be used by trucks to access the proposed Kleinkrantz Sand Quarry.

However, according to SANRAL’s Access Management Plan, access to RE/2/191 (#047) and access to RE/4/191 should be closed and a new access should be constructed opposite access #048, which would provide access to RE/2/191, RE/3/191 and RE/4/191. This would require extensive earthworks as well as the construction of a service road in the road reserve to provide access to RE/2/191 and RE/4/191.

The internal access road within the property will be a normal gravel road and will not be a formally constructed road with hard surfacing (i.e. tarred).

Potential impacts

The heritage, visual and biodiversity specialists have confirmed that the proposed alternative access point opposite #048 would result in significant negative impacts to biodiversity and visual aspects adjacent to a scenic National Road.

Access opposite #048 would result in an unacceptable impact on the natural vegetation through the required earthworks and changes to the natural topography. The bank that would need to be removed to create a new N2 access interchange, currently supports indigenous vegetation and forms an important part of the proposed buffer along the N2 where the alien vegetation is to be removed and rehabilitation with indigenous vegetation is to commence. This 60m buffer zone is an important corridor for connectivity along the N2 and forms part of the recommended visual buffer.

Access #048 is used by the residents of the Pinedew Farm area including the Ubuntu Garden Route Retreat. A new access opposite #048 would require these residents to share the access with trucks.

The construction of a new access opposite #048 would be much more expensive due to the extensive earthworks and rehabilitation that would be required.

Table 19: Impacts associated with the access position

Potential impacts associated with the access road:	Existing access # 047	New access opposite # 048
Nature of impact:	Negative and direct	Negative and direct
Extent of impact:	Local	Local to regional
Consequence of impact:	Low	High
Duration of impact:	Permanent	Permanent
Probability of occurrence:	Definite	Definite
Confidence:	Certain	Certain
Degree to which the impact can be reversed:	N/A as the impact has already occurred	Irreversible
Degree to which the impact may cause irreplaceable loss of resources:	N/A as the impact has already occurred	Irreplaceable
Significance rating of impact prior to mitigation (Neutral, Very Low, Low, Medium, or High)	Low	High
Significance rating of impact after mitigation (Neutral, Very Low, Low, Medium, or High)	Low	High

Discussion

Qunu Engineers are the appointed consulting engineers on behalf of SANRAL for this section of the N2.

Qunu Engineers have been appointed to assist with a design proposal and application for access to the property and they are in contact with SANRAL statutory control in this regard.

The access position will be decided by SANRAL.

Preferred alternative

The heritage, visual and biodiversity specialists have confirmed that the existing access position #047 is the preferred access alternative from an environmental point of view.

The impacts associated with the construction of access #047 have already occurred and it would be fairly simple to modify and widen the design of Access #047 so that it would be suitable to be used by trucks to access the proposed Kleinkrantz Sand Quarry.

However, ultimately the access position will be decided by SANRAL and the applicant will comply with their requirements.

12.10 Cumulative impacts

Although the proposed sand quarry would have a fairly localised visual influence, the fact that there are two other quarries nearby means that the cumulative effect of all the quarries together would impact on the rural character of the area, as well as its 'sense of place'. This in turn could potentially affect the tourism potential and property values of the area.

Another visual concern is that the proposed quarry tends to create a leap-frog effect, with sand quarries occurring in a random pattern. This leads to fragmentation of the landscape and visual disruption of a semi-rural small-holding environment.

The siting of sand mines should ideally be guided by the Municipal Spatial Development Plan (MSDF), to minimise conflicts with existing land uses.

Taking the above into account, the cumulative visual impact significance is considered to be 'medium-high' before mitigation, 'medium' after mitigation with buffers, as currently proposed, and 'low' after rehabilitation.

The cumulative impact of sand mining in the Langvlei dunes area is to be anticipated as it is a source of building sand which is not readily available elsewhere. Sand mines have a limited lifespan and there should be a proactive plan within the area to identify sites suitable for mining and those which should never be mined (even with the availability of the mineral resource) due to their biodiversity value. Although no such overarching plan is available, the alternative sites considered for this sand quarry resulted in the selection of the property with the least biodiversity impact and one would expect any similar future sand mines to follow a similar process.

The long-term conservation outcome proposed for the Kleinkrantz Sand Quarry for rehabilitation and joining the local conservancy to ensure that this outcome is realized, will ensure that the cumulative impact of this sand quarry contributes to the long-term conservation planning and outcomes for the area. The short-term disturbance through mining will not result in any long-term opportunity costs to conservation.

13. “NO GO” ALTERNATIVE

The significance rating of the “no go” alternative is Neutral with respect to most of the key aspects that have been assessed for the “preferred” mining option. However if the “no go” alternative is to be considered as a realistic and feasible option then it is important to consider the impact of the “no go” alternative on the socio-economic aspects as well.

13.1 Socio-economic

Introduction

PVVK Management Services CC’s core business is the provision of construction material for construction and development projects.

Potential impacts of the “no go” alternative

The “no go” alternative would mean that PVVK Management Services will lose an economic opportunity as well as an opportunity to create employment.

Construction projects in the area would still require building sand to be obtained from somewhere else. If the material was transported from a longer distance it would increase the cost. The increased cost would ultimately be passed on to the consumer.

Table 20: Socio-economic: summary of assessment of the “no go” alternative

Potential impacts on socio-economic environment:	
Nature of impact:	Negative
Extent of impact:	Local to regional
Consequence of impact:	Medium
Duration of impact:	Long term
Probability of occurrence:	Probable
Confidence:	Sure
Degree to which the impact can be reversed:	Reversible
Degree to which the impact may cause irreplaceable loss of resources:	n/a
Significance rating of impact prior to mitigation (Neutral, Very Low, Low, Medium, or High)	Medium
Significance rating of impact after mitigation (Neutral, Very Low, Low, Medium, or High)	Medium

Discussion

The “no go” alternative will not have a positive impact on the socio-economic aspects for PVVK Management Services, its employees, its customers or for construction projects in the area.

Proposed mitigation / enhancement measures

There are no mitigation or enhancement measures for the impact of the “no go” alternative on socio-economic conditions.

14. ENVIRONMENTAL IMPACT STATEMENT

14.1 Summary of the key findings of the environmental impact assessment

The significance ratings of impacts after mitigation on the key aspects of the “revised and preferred alternative” and the “no go” alternative are shown in the following table:

Table 21: Comparative assessment of alternatives

Aspects	Revised and preferred alternative	“No go alternative”
Biodiversity	Medium - low	Neutral
Water resources	Very low	Neutral
Dust	Very low	Neutral
Noise	Very low	Neutral
Solid waste	Very low	Neutral
Heritage resources		
- <i>Visual (cultural landscape & scenic route)</i>	Medium – low	Neutral
- <i>Archaeology / Palaeontology</i>	Low	Neutral
Socio-economic	Medium (+ve)	Medium (-ve)

The assessed impacts of the sand mine are very low for most aspects apart from on the socio-economic aspects, heritage resources (including visual impact) and on the biodiversity of the site. These are therefore the key aspects that should be considered by decision makers.

Key findings of the environmental impact assessment for the “preferred alternative” are summarised below:

Biodiversity: The proposed mining area has been transformed and the bulk of the vegetation on the property consists of mature stands of pine and black wattle. The proposed end use of rehabilitation is to restore the natural dune thicket and fynbos mosaic vegetation of the area. Provided that the applicant complies with the recommended mitigation measures the significance of the impacts will be reduced to ‘medium – low’.

Heritage resources (including visual Impact): The only heritage resource of concern is the visual impact on the cultural landscape and the N2 scenic route. Provided that the applicant complies with the recommended mitigation measures the significance of the impacts will be reduced to ‘medium – low’.

Water resources: There are no rivers, streams or wetlands in the mining right area. Provided that the applicant complies with the requirements of the EMPr then the significance of impacts on water resources should be ‘very low’.

Dust, noise and waste: The proposed mining activity could potentially result in dust, noise and waste impacts. However, as long as the applicant complies with the requirements of the EMPr, then the significance of potential dust, noise and waste impacts should be 'very low'.

Socio-economic: The site is very conveniently situated to provide building sand to the Garden Route area. The socio-economic impacts of the project will be positive.

The proposed post-mining restoration of the land to dune thicket and fynbos is consistent with use of the property as defined in the planning by-law for land zone as Agriculture 1.

It is considered that the long term socio-economic benefits of this project outweigh the negative impacts that will occur as the result of the mining of the sand in the mining right area.

14.2 Final site map

(a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers)

See **Figures 2, 4, 5 and 6.**

14.3 Summary of the positive and negative impacts and risks

(a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives)

The assessed impacts of the sand mine are very low for most aspects apart from on the socio-economic aspects, heritage resources and on the biodiversity aspects of the land. These are therefore the key aspects that should be considered by decision makers.

The area will be rehabilitated so that it is restored to dune thicket and fynbos and will improve the ecological status of the land. The final landscape will blend in with the adjacent land.

See also **Section 14.1** (above).

14.4 Proposed impact management objectives and outcomes

(based on the assessment, and where applicable, recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr)

The proposed impact management objectives and outcomes for the project are as follows:

Objective 1: To ensure effective rehabilitation of the Kleinkrantz Sand Quarry

Outcomes:

- Ensure that the quarry is mined and rehabilitated in accordance with the EMPr.
- Ensure that the quarry slopes and floor have been revegetated with natural vegetation.
- Ensure that alien vegetation has been cleared from the entire property (including the buffer areas)
- Remove all equipment including the screen, weighbridge and site office.

Objective 2: To minimise pollution or degradation of the environment.

Outcomes:

- Ensure that no fuel or oil spills occur in the mining area.
- Ensure that chemical toilets are used.
- Ensure that solid waste is managed correctly.
- Ensure that all alien invasive vegetation is cleared from the property.

Objective 3: To minimise impacts on the community.

Outcomes:

- To minimise the visibility of the quarry from the N2 National Road.
- To ensure that workers remain within the mining area.
- To operate during normal working hours only.
- To minimise the generation of noise and dust.
- To respond rapidly to any complaints received.

14.5 Final proposed alternative

The final proposed alternative is the revised mining layout as shown in **Figure 4** and the mining and rehabilitation plan in **Figure 5**.

14.6 Proposed conditions of authorisation

(any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation)

The proposed conditions of authorisation are as follows:

- All mining and rehabilitation to be conducted as per the approved EMPr.
- Concurrent mining and rehabilitation must be done.
- The proposed mining areas must be clearly demarcated with semi-permanent markers.
- The upper 500mm of soil must be removed and stockpiled to be returned after mining by spreading evenly over the mined area.
- Rehabilitation cannot be considered to be complete until the natural vegetation cover is well established.
- Control measures must be implemented to prevent pollution of any water resource by oil, grease, fuel or chemicals.
- Eradicate all alien vegetation in the area during and regularly after mining.

- Appropriate pollution prevention measures must be implemented to prevent dust and noise pollution.
- Should any heritage remains be exposed during mining these must immediately be reported to Heritage Western Cape.
- Environmental audit reports should be submitted every second year.

14.7 Assumptions, uncertainties and gaps in knowledge

(a description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed)

Where relevant or applicable, each specialist provided details of knowledge gaps, assumptions and uncertainties encountered in compiling the required information. The overall confidence was provided in the impact assessment tables for each aspect that was assessed. In no case was the confidence level found to be 'unsure'.

Relevant knowledge gaps, assumptions and uncertainties are provided below.

Biodiversity

The following assumptions were described by Hilland Environmental in the specialist biodiversity assessment (**see Appendix 2**).

Red List species are, by their nature, usually very rare and difficult to locate. Similarly, the time of the year that the assessment is undertaken, prolonged drought and a host of other factors may affect the ability to locate rare and endangered species, or to confirm their presence or absence. The habitat condition and history of transformation is used to predict the likelihood of the area supporting such species. The lists themselves are also limited to the historic records of known occurrences of species and these can never be complete. Given the status of the site, length of time of transformation (plantation), it is unlikely that any rare or endangered species remain on site. Although the site was revisited in spring after rainfall, no presence of rare or endangered species was noted.

Seed and bulbs may however still be dormant on site and as such the importance of topsoil recovery and use in rehabilitation is critical.

Heritage

ASHA Consulting (**see Appendix 3a**) stated that the lack of a field study is a limitation for the assessment of potential impacts on the archaeology and palaeontology of the site.

The reasons for this were as follows:

- No archaeological specialist study was requested by HWC;
- A previous survey by the author for one of the neighbouring sand mines revealed nothing on the surface (Orton & Smuts 2007); and
- It is already known that the site has a thick blanket of leaf litter owing to the dense alien bush present which means that visibility would be non-existent.

Given the reasons provided above, it was concluded by the specialist that the lack of a field study would not have affected the outcome of the HIA.

Visual

The visual specialists (**see Appendix 3b**) listed the following assumptions:

It was assumed that the sand mining would be carried out over an area of about 6 hectares, depending on the final configuration of the buffers. The planned duration of the quarry is 15 to 20 years, depending on the demand for building sand.

The post-mining activity would be the rehabilitation of the entire site with natural vegetation and the removal of any building structures.

It was assumed that no lighting would be required at night, except for security lighting at the site office. Standard mine operating hours would be weekdays 06:30 to 17:00, Saturdays 07:00 to 13:00 and closed on Sundays. The sand quarry would also be closed for the builders' holiday every year from mid-December to mid-January.

14.8 Reasoned opinion of the EAP

(a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation)

14.8.1 Reasons why the activity should be authorised or not

This report provides an assessment of the environmental impacts associated with the proposed mining activities. The assessment has taken into account the comments provided by the relevant authorities and interested and affected parties to date. All interested and affected parties will be provided with a further 30 day period to comment on this report and the comments will be included with the final submission to the Competent Authority (i.e. the DMR).

A specialist study was commissioned to assess the impact of the proposed mining activity on the biodiversity of the land and to prepare a rehabilitation plan (**see Appendix 2**).

A Heritage Impact Assessment (**see Appendix 3a**) was undertaken including a Visual Impact Assessment (**see Appendix 3b**).

A specialist town planning report was prepared to consider the “need and desirability” of the proposal as well as the implications with respect to the relevant planning instruments that are applicable to the site (**see Appendix 4**).

The approach taken by the applicant is that it is preferable to avoid significant negative environmental impacts, wherever possible. The mining right area is not located in a Critical Biodiversity Area (CBA). In the revised and preferred alternative the buffer area adjacent to the Garden Route National Park has been increased to 60 metres and remnants of natural vegetation identified during the biodiversity assessment have also been included in a buffer area. There are no wetlands, streams or rivers located within the mining right area.

The revised mining layout plan delineates the preferred alternative that is assessed in this EIA Report.

The “preferred alternative” takes into account location alternatives, activity alternatives, layout alternatives, technology alternatives and operational alternatives.

It is the opinion of the Environmental Assessment Practitioner (EAP) that provided that the recommended mitigation measures are implemented and mining activities are managed in accordance with the stipulations of the Environmental Management Programme and in an environmentally sound manner, the potential negative impacts associated with the implementation of the preferred alternative can be reduced to acceptable levels.

No negative impacts have been identified that are so severe as to prevent the proposed mining activity from taking place, and the activity has been assessed to have a positive socio-economic

impact, especially in terms of the creation of employment and the provision of building sand for construction and development projects in the Garden Route area.

14.8.2 Conditions of approval

See **Section 14.6**.

14.9 Period for which the environmental authorisation is required

The environmental authorisation is required for the life of mine which is estimated to be twenty years.

14.10 Undertaking by the EAP

It is confirmed that the undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Environmental Impact Assessment Report (EIAR) and the Environmental Management Programme report (EMPr).

15. FINANCIAL PROVISION

(where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts)

The Applicant is required to make the prescribed financial provision for the rehabilitation or management of negative environmental impacts. Concurrent mining and rehabilitation is required at all times. There should only be one mining phase being actively mined at a time.

An estimate of the financial provision required for the rehabilitation of the mine is shown in the following table:

Table 22: Itemisation of the quantum of the financial provision

Item	Daily rate	Days	Cost
Replacing topsoil: front end loader	R 4 000	7	R 28 000
Sloping, overburden transport & placement	R 4 000	7	R 28 000
Seeding & re-vegetation			R 10 000
Removal of weigh bridge, screen & site office			R 10 000
Labour costs			R 9 000
Sub-total (1)			R 85 000
Supervision (10% of Sub-total)			R 8 500
Sub-total (2)			R 93 500
VAT (15%)			R 14 025
TOTAL			R 107 525

The quantum of the financial provision required is therefore: R108 000. The Applicant must annually update and review the quantum of the financial provision

The Applicant undertakes to provide for the financial provision and a Bank Guarantee will be the method of providing for the financial provision.

If the Applicant fails to rehabilitate or manage any negative impact on the environment, the DMR may, upon written notice to the Applicant, use all or part of the financial provision to rehabilitate or manage the negative environmental impact in question.

16. ANY OTHER SPECIFIC INFORMATION

(any specific information that may be required by the competent authority)

16.1 A description of any deviation from the approved scoping report

Not applicable.

16.2 Impact on the socio-economic conditions of any directly affected person

There is no negative impact on the socio-economic conditions of any directly affected person.

16.3 Impact on any national estate referred to in the National Heritage Resources Act

There are no Grade 1 Heritage Resources on the property with qualities so exceptional that they are of special national significance.

16.4 Any other matters

There are no other matters.

PART B: ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

17. EMPr: INTRODUCTION

17.1 Details and expertise of the EAP

The details and expertise of the EAP have been included in PART A, the Environmental Impact Assessment Report.

17.2 Description of the aspects of the activity that are covered by the EMPr

The aspects of the activity have been described in PART A, the Environmental Impact Assessment Report.

17.3 Site map

(a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoiding including buffers)

Site maps are included in the Environmental Impact Assessment Report (**see Figures 4, 5 and 6**).

18. IMPACT MANAGEMENT OBJECTIVES

18.1 Closure and environmental objectives

The closure and environmental objectives have already been described in the EIAR and are repeated below:

Objective 1: To ensure effective rehabilitation of the Kleinkrantz Sand Quarry

Outcomes:

- Ensure that the quarry is mined and rehabilitated in accordance with the EMPr.
- Ensure that the quarry slopes and floor have been revegetated with natural vegetation.
- Ensure that alien vegetation has been cleared from the entire property (including the buffer areas)
- Remove all equipment including the screen, weighbridge and site office.

Objective 2: To minimise pollution or degradation of the environment.

Outcomes:

- Ensure that no fuel or oil spills occur in the mining area.
- Ensure that chemical toilets are used.
- Ensure that solid waste is managed correctly.
- Ensure that all alien invasive vegetation is cleared from the property.

Objective 3: To minimise impacts on the community.

Outcomes:

- To minimise the visibility of the quarry from the N2 National Road.
- To ensure that workers remain within the mining area.
- To operate during normal working hours only.

- To minimise the generation of noise and dust.
- To respond rapidly to any complaints received.

18.2 Closure

The decommissioning of the mine will require a closure certificate in terms of section 43 of the MPRDA.

The contents of the closure plan are prescribed in Appendix 5 of the EIA Regulations, 2014 and must contain, inter alia:

- The closure objectives;
- The proposed mechanisms for monitoring compliance with and performance assessment against the closure plan;
- The time periods within which the measures contemplated in the closure plan must be implemented;
- The details of all public participation processes conducted; and
- The details of any financial provision for the rehabilitation, closure and on-going post decommissioning management of negative environmental impacts.

18.3 Impact management outcomes

See **Section 18.1** (above).

19. IMPACT MANAGEMENT ACTIONS

(1(f) in Appendix 4 of the EIA Regulations, 2014: A description of proposed impact management actions)

19.1 Introduction

This section contains guidelines, operating procedures and rehabilitation/pollution control requirements which will be binding on the holder of the mining right after the granting of the environmental authorisation and the approval of the Environmental Management Programme (EMPr). It is essential that this portion be carefully studied, understood, implemented and adhered to at all time.

The Applicant shall ensure that this EMPr is provided to the Mine Manager and any other person or organisation who may work on the site. The Applicant shall ensure that any person or organisation that works on the site complies with the requirements of this EMPr.

19.2 Responsibility

- The affected environment shall be maintained in a stable condition that will not be detrimental to the safety and health of humans and animals and that will not pollute the environment or lead to the degradation thereof.
- It is the responsibility of the Applicant to ensure that the manager on the site and the employees are capable of complying with all the statutory requirements that must be met in order to mine, which includes the implementation of this EMPr.
- The Applicant must appoint an Environmental Control Officer (ECO) to ensure that the activities on site comply with the Environmental Authorisation (EA) and the approved EMPr and to provide guidance with respect to rehabilitation.

Schedule

Ongoing, throughout the life of the mine.

19.3 Demarcation of the mining area

The mining area is to be clearly demarcated by means of concrete beacons at its corners. Mining operations will only take place within this demarcated area.

Schedule

Annual check to see that corner beacons are still in place.

19.4 Community relations

The Applicant shall erect and maintain a notice board at the entrance to the Mine. The notice board shall include contact details for complaints by the neighbours and members of the public.

The Applicant shall keep a "Complaints Register" on site. The Register shall contain the contact details of the person who made the complaint, and information regarding the complaint itself. The Applicant shall respond to all complaints within seven days. Copies of all responses should be kept together with the Register.

The Applicant should join the Paradise Ridge Conservancy and the Southern Cape Fire Protection Association.

Schedule

Ongoing, throughout the life of the mine.

19.5 Plant search and rescue

Prior to commencement of mining and clearing activities in each Phase, the area is to undergo an indigenous plant rescue survey together with the ECO. Any plants that are deemed worth of rescuing are to be transplanted into the designated nursery area. A register of each plant that was transplanted and rescued is to be maintained.

Permits for protected trees (Milkwood and Candlewood Trees) must be obtained before any of these are transplanted.

Stockpiling of cut vegetation shall only be permitted in areas indicated by the ECO. No cut vegetation shall be burnt on site. The removal, damage or disturbance of flora and fauna is forbidden outside the immediate mining area without the written approval of the ECO.

Schedule

Ongoing, throughout the life of the mine.

19.6 Topsoil clearing and stockpiling

The topsoil on this site is valuable and crucial for any rehabilitation efforts upon closure of the mining area as it contains all the required seed and bulbs to re-establish the area. As topsoil is a valuable resource, it must be stripped from all mining areas before work commences and only after plant rescue has been undertaken. This topsoil should be immediately replaced on previously mined areas in accordance with the rehabilitation plan.

Some topsoil will also be stockpiled for use during rehabilitation as described in the rehabilitation plan. Topsoil is to be stockpiled in designated topsoil stockpile areas, to be agreed on by the ECO. The stockpiled topsoil must be protected from erosion by wind and water as well as from contamination (mixing) with other material.

Topsoil is to be replaced on mined areas as soon as mining has been completed.

Schedule

Ongoing, throughout the life of the mine.

19.7 Rehabilitation plan

The proposed outcome of rehabilitation is to restore the natural dune thicket and fynbos mosaic vegetation of the area.

The rehabilitation plan for the sand quarry is included in the specialist biodiversity assessment (see Appendix 2) and is illustrated in Figure 5. The rehabilitation plan is summarised below:

19.7.1 Phase 1 (approximate years 1-4)

Summary of activities: Establishing the N2 visual buffer, entrance and infrastructure area and the commencement of mining in Phase 1.

The following procedure needs to be followed prior to any mining activities taking place on site:

- Demarcate Phase 1 and fence the area off.
- Demarcate and fence off the N2 buffer zone and the 9m buffers on either side.
- Cut and remove all alien vegetation within the Phase 1 area (including the 9m side buffers).
- Mark and remove the initial clearing alien trees from the N2 buffer zone. This is to include the thinning out of all the young alien seedlings and saplings and mature canopy trees to be left at a density of 1 per 10m² to act as a visual screen and “nursery forest canopy” for the establishment of indigenous forest and thicket trees beneath. 6 monthly

follow-up alien control is required to keep seedling alien vegetation out of this area. Each year the area is to be evaluated by the rehabilitation specialist to determine which alien trees can be removed to make canopy space for the returning indigenous trees. Biocontrol on the mature remaining Black Wattle must be present on site to prevent any new seed set.

- Identify any protected trees within Phase 1 and obtain the necessary DAFF permit to transplant.
- Transplant any protected trees from Phase 1 into the N2 rehabilitation buffer zone.
- Transplant all indigenous seedlings and saplings from Phase 1 into the N2 buffer zone. Rehabilitation specialist to assist in training and identifying what to plant where. In principle thicket species should be planted in clusters to simulate the natural growth pattern and ecological processes in the area. Fynbos species to be planted in the clear patches between the forest/thicket clusters.
- Topsoil from Phase 1 to be used for establishment of the N2 berm (outside the 60m buffer zone). This can include the tree stumps from alien vegetation clearing. Any surplus of topsoil from Phase 1 should be stockpiled for future use at a site approved by the ECO. The vegetated root and seed layer of the topsoil from Phase 1 should be placed at the top of the berm so that the natural regrowth can occur and soil from deeper in the soil profile and stumps to be placed within the middle of the berm.
- The stockpile is to be retained for the rehabilitation of the final Phase and the working and processing area.
- It is anticipated that the main haul road will be retained for access throughout the life of the project and will not be rehabilitated at the end of the life of the mine, but will be retained for landowner access on the property.
- While mining Phase 1 (approximately 4 years), the alien clearing of all the buffers and Phase 2 – 5 needs to be undertaken by cutting and poisoning the stumps of all mature Black Wattle trees and hand pulling all seedling Black Wattle. Harvesting any remaining pine and gum trees. Poisoning the stumps of any gum trees. Timber cut can be collected and bagged as firewood and can be undertaken in consultation with the initiatives of the local Conservancy and SANParks. Hand pulling of any emerging alien invasive seedlings to take place on rotation every 6 months. All branches from alien clearing are to be chipped and retained as mulch and can be used as dust control on the main haul road.

19.7.2 Phase 2 (approximate years 5-8)

Summary of activities: Rehabilitation of Phase 1 and the commencement of mining in Phase 2.

The following procedure needs to be followed prior to any mining activities taking place within phase 2:

- Remove the fence from around Phase 1
- Identify any protected trees within Phase 2 and obtain the necessary DAFF permit to transplant.
- Transplant any protected trees from Phase 2 into the GRNP buffer and the adjacent 9m buffers (west and east of Phase 1).
- Transplant all indigenous seedlings and saplings from Phase 2 into the on-site nursery (established in the clear area in the GRNP buffer zone). Rehabilitation specialist to assist in training and identifying what to rescue and how to establish the nursery.
- Topsoil from Phase 2 to be used for the rehabilitation of Phase 1. The topsoil is to be taken directly from the Phase 2 working area and spread to the same depth within the reshaped Phase 1 area.
- A small stockpile of surplus topsoil is to be retained to repair any erosion damage. ECO to advise where to store such material.

- The topsoil should be hydro seeded with *Cynodon dactylon* to ensure a rapid natural grass covering to prevent any erosion. The use of soil saving sausages spread and pegged along the contours may be required if the slopes are too steep.
- Alien seed will germinate initially after the disturbance of the soil and as such hand pulling of seedlings will be required on a 6 monthly basis.
- Care will be required to not damage any emerging indigenous seed.
- Once the grass covering is established (approximately 6 months), the rescue species from the nursery can start to be planted out into the Phase 1 rehabilitation areas.
- In principle thicket species should be planted in clusters to simulate the natural growth pattern and ecological processes in the area. Fynbos species to be planted in the clear patches between the forest/thicket clusters. Pioneer thicket species (*Osteospermum monilliferum*) will germinate with the grass seed initially and these should be used to identify where the thicket clusters should be planted. Rehabilitation specialist to advise.
- Once Phase 1 rehabilitation is complete, fencing should be secured around Phase 2 – no other fencing to block the natural wildlife on site.
- The working areas still within the Phase 1 area that will remain operational for the life of the mine are to remain fenced.

19.7.3 Phase 3 (approximate years 9-12)

Summary of activities: Rehabilitation of Phase 2 and the commencement of mining in Phase 3.

The following procedure needs to be followed prior to any mining activities taking place within Phase 3:

- Remove the fence from around Phase 2.
- Identify any protected trees within Phase 3 and obtain the necessary DAFF permit to transplant.
- Transplant any protected trees from Phase 3 into Phase 1 (which by this stage will have 4 years of growth)
- Transplant all indigenous seedlings and saplings from Phase 3 into the on-site nursery. ECO to assist with identifying what to rescue.
- Topsoil from Phase 3 to be used for the rehabilitation of Phase 2. The topsoil is to be taken directly from the Phase 3 working area and spread to the same depth within the reshaped Phase 2 area.
- A small stockpile of surplus topsoil is to be retained to repair any erosion damage. ECO to advise where to store such material.
- The topsoil should be hydroseeded with *Cynodon dactylon* to ensure a rapid natural grass covering to prevent any erosion. The use of soil saving sausages spread and pegged along the contours may be required if the slopes are too steep.
- Alien seed will germinate initially after the disturbance of the soil and as such hand pulling of seedlings will be required on a 6 monthly basis.
- Care will be required to not damage any emerging indigenous seed.
- Once the grass covering is established (approximately 6 months), the rescue species from the nursery can start to be planted out into the Phase 2 rehabilitation areas.
- In principle thicket species should be planted in clusters to simulate the natural growth pattern and ecological processes in the area. Fynbos species to be planted in the clear patches between the forest/thicket clusters. Pioneer thicket species (*Osteospermum monilliferum*) will germinate with the grass seed initially and these should be used to identify where the thicket clusters should be planted. Rehabilitation specialist to advise.
- Once Phase 2 rehabilitation is complete, fencing should be secured around Phase 3 – no other fencing to block the natural wildlife on site.
- The working areas still within phase 1 that will remain operational for the life of the mine are to remain fenced.

19.7.4 Phase 4 (approximate years 13-16)

Summary of activities: Rehabilitation of Phase 3 and the commencement of mining in Phase 4.

The following procedure needs to be followed prior to any mining activities taking place within Phase 4:

- Remove the fence from around Phase 3.
- Identify any protected trees within Phase 4 and obtain the necessary DAFF permit to transplant.
- Transplant any protected trees from Phase 4 into Phase 2 (which by this stage will have 4 years of growth)
- Transplant all indigenous seedlings and saplings from Phase 4 into the on-site nursery. ECO to assist with identifying what to rescue.
- Topsoil from Phase 4 to be used for the rehabilitation of Phase 3. The topsoil is to be taken directly from the Phase 4 working area and spread to the same depth within the reshaped Phase 3 area.
- A small stockpile of surplus topsoil is to be retained to repair any erosion damage. ECO to advise where to store such material.
- The topsoil should be hydroseeded with *Cynodon dactylon* to ensure a rapid natural grass covering to prevent any erosion. The use of soil saving sausages spread and pegged along the contours may be required if the slopes are too steep.
- Alien seed will germinate initially after the disturbance of the soil and as such hand pulling of seedlings will be required on a 6 monthly basis.
- Care will be required to not damage any emerging indigenous seed.
- Once the grass covering is established (approximately 6 months), the rescue species from the nursery can start to be planted out into the Phase 3 rehabilitation areas.
- In principle thicket species should be planted in clusters to simulate the natural growth pattern and ecological processes in the area. Fynbos species to be planted in the clear patches between the forest/thicket clusters. Pioneer thicket species (*Osteospermum monilliferum*) will germinate with the grass seed initially and these should be used to identify where the thicket clusters should be planted. Rehabilitation specialist to advise.
- Once Phase 3 rehabilitation is complete, fencing should be secured around Phase 4 – no other fencing to block the natural wildlife on site.
- The working areas still within Phase 1 that will remain operational for the life of the mine are to remain fenced.

19.7.5 Phase 5 (approximate years 17-20)

Summary of activities: Rehabilitation of Phase 4 and the commencement of mining in Phase 5.

The following procedure needs to be followed prior to any mining activities taking place within Phase 5:

- Remove the fence from around Phase 4.
- Identify any protected trees within Phase 5 and obtain the necessary DAFF permit to transplant.
- Transplant any protected trees from Phase 5 into Phase 3 (which by this stage will have 4 years of growth).
- Transplant all indigenous seedlings and saplings from Phase 5 into the on-site nursery. ECO to assist with identifying what to rescue.
- Topsoil from Phase 5 to be used for the rehabilitation of Phase 4 and a portion retained for rehabilitation of Phase 5.
- A windrow of topsoil to be kept along the boundary of the GRNP buffer.
- The remaining topsoil is to be taken directly from the Phase 5 working area and spread to the same depth within the reshaped Phase 4 area.

- A small stockpile of surplus topsoil is to be retained to repair any erosion damage. ECO to advise where to store such material.
- Surplus from topsoil recovery from Phase 1-4 to be retained for final rehabilitation of Phase 5.
- The topsoil should be hydroseeded with *Cynodon dactylon* to ensure a rapid natural grass covering to prevent any erosion. The use of soil saving sausages spread and pegged along the contours may be required if the slopes are too steep.
- Alien seed will germinate initially after the disturbance of the soil and as such hand pulling of seedlings will be required on a 6 monthly basis.
- Care will be required to not damage any emerging indigenous seed.
- Once the grass covering is established (approximately 6 months), the rescue species from the nursery can start to be planted out into the Phase 4 rehabilitation areas.
- In principle thicket species should be planted in clusters to simulate the natural growth pattern and ecological processes in the area. Fynbos species to be planted in the clear patches between the forest/thicket clusters. Pioneer thicket species (*Osteospermum monilliferum*) will germinate with the grass seed initially and these should be used to identify where the thicket clusters should be planted. Rehabilitation specialist to advise.
- Once Phase 4 rehabilitation is complete, fencing should be secured around Phase 5 – no other fencing to block the natural wildlife on site.
- The working areas still within Phase 1 that will remain operational for the life of the mine are to remain fenced.

19.7.6 Final rehabilitation and closure (approximate years 21-22)

Summary of activities: Once the mining operation in Phase 5 is complete the entire area needs to be prepared for final rehabilitation and closure.

The following activities are required:

- Final reshaping of Phase 5 and spreading of the topsoil stored for this purpose.
- Final reshaping and removal of all mining related infrastructure on the property and spreading topsoil.
- No imported topsoil to be used as this may contain alien invasive species.
- Removal of all fencing.
- The topsoil should be hydroseeded with *Cynodon dactylon* to ensure a rapid natural grass covering to prevent any erosion. The use of soil saving sausages spread and pegged along the contours may be required if the slopes are too steep.
- Alien seed will germinate initially after the disturbance of the soil and as such hand pulling of seedlings will be required on a 6 monthly basis.
- Care will be required to not damage any emerging indigenous seed.
- Once the grass covering is established (approximately 6 months), the remaining rescue species from the nursery can be planted out into the Phase 5 rehabilitation area.
- In principle thicket species should be planted in clusters to simulate the natural growth pattern and ecological processes in the area. Fynbos species to be planted in the clear patches between the forest/thicket clusters. Pioneer thicket species (*Osteospermum monilliferum*) will germinate with the grass seed initially and these should be used to identify where the thicket clusters should be planted. Rehabilitation specialist to advise.
- Once Phase 5 rehabilitation is complete, the rehabilitation specialist is to evaluate the area and determine if any additional plant material is required for rehabilitation and this will need to be sourced from commercial sources.
- It is anticipated that the nursery area will remain for use of the landowner as a potential site to build a primary dwelling.
- The remaining road providing access to the nursery site will be retained.

- Alien clearing follow-up will continue every 6 months into the future but will no longer be the responsibility of the mining operator but that of the landowner.

Schedule

Ongoing rehabilitation of the quarry slopes and floor throughout the life of the mine, as described above. Rehabilitation is to be completed before an application for a closure certificate is submitted.

19.8 Berm creation and management

A visual berm will be established and vegetated to ensure that the mining area is efficiently screened from the N2 National Road in order to reduce and mitigate the visual impact of the proposed sand quarry.

Topsoil from Phase 1 to be used for establishment of the N2 berm (outside the 60m buffer zone). This can include the tree stumps from alien vegetation clearing. Any surplus of topsoil from Phase 1 should be stockpiled for future use at a site approved by the ECO. The vegetated root and seed layer of the topsoil from Phase 1 should be placed at the top of the berm so that the natural regrowth can occur and soil from deeper in the soil profile and stumps to be placed within the middle of the berm.

The berm must be kept free of alien invasive vegetation.

Schedule

Ongoing, throughout the life of the mine.

19.9 Stormwater management plan

Although there are no drainage lines, watercourses or wetlands in the proposed Kleinkrantz Sand Quarry the following measures are required to ensure that no silt is leaves the site in storm water run-off:

- After mining in each Phase, the slopes at the edges of the quarry must be shaped and sloped to ensure that they are not steeper than 1:2.5.
- The slopes must be protected from erosion by placing nets or offcut timber planks at right angles to the slope or by using soil saving sausages spread and pegged along the contours.
- No depressions should be left in the mining floor. A surface slope (even if minimal) must be maintained across the quarry floor towards the south.
- The southern boundary of the quarry is 60 metres away from the N2 National Road so there is a very low possibility of any silt leaving the site.
- Stormwater may accumulate for a while on the quarry floor but will then normally drain into the underlying sand.
- If really necessary silt can be prevented from leaving the site by means of silt retention ponds.

Schedule

Ongoing, throughout the life of the mine.

19.10 Control of invasive alien vegetation

A detailed alien invasive plant control plan is included in **Appendix 2**.

All alien plant species located on the property, including those that do not fall within the proposed quarry area need to be cleared using the removal methods described in the alien control plan and approved by the ECO.

These methods may include mechanical removal through felling or pulling out by hand and chemical removal through the use of approved herbicide.

A phased approach to alien clearing as described in the rehabilitation plan should be implemented.

Schedule

Ongoing, throughout the life of the mine and thereafter by the land owner.

19.11 Protection of animal life

The applicant is to ensure that no hunting, trapping, shooting, poisoning or otherwise disturbance of any fauna takes place. The feeding of any wild animals is prohibited. No domestic pets or livestock are permitted on site. Prior to the clearing of vegetation or use of equipment on areas that could be considered habitats or movement corridors for small animals (i.e. grassy verges, clumps of shrubs, trees) animal rescue of small, slow moving species is to be conducted in conjunction with the ECO. Any rescued animals including tortoises and other reptiles are to be safely relocated to a nearby undisturbed natural area that does not form part of the proposed footprint.

It is anticipated that the noise and general activity will keep animal life away from the site while the mining is ongoing. However, if animals are encountered during the mining operations they must not be killed or injured. Any animals encountered during the mining operations should be rescued and safely relocated to a nearby undisturbed natural area.

Schedule

Ongoing, throughout the life of the mine.

19.12 Illegal Dumping of Rubble

Access to the site will be controlled at all times. The public will not have access to the site. The Mine will not be used for the dumping of rubble. The environmental awareness training will ensure that all workers are aware of this commitment. Any vehicle that is caught illegally dumping rubble will be reported to the George Municipality immediately.

Schedule

Ongoing, throughout the life of the mine.

19.13 Windblown dust

The applicant must ensure that all activities comply with the NEM: Air Quality Act (Act 39 of 2004) and the National Dust Control Regulations (GN R827 of 2013).

All reasonable measures must be taken to minimise the generation of dust. These measures include:

Dust in the mining area:

- Removal of vegetation shall be avoided until such time as soil stripping is required and similarly exposed surfaces (especially mined out areas) shall be rehabilitated or stabilised as soon as is practically possible.
- Minimize size of areas to be cleared at any one time.
- Rehabilitate and revegetate the quarry in each mining phase as soon as mining is completed.
- Excavation, handling and transport of sand and topsoil shall be avoided under high wind conditions or when a visible dust plume is present.

- During high wind conditions, the Mine Manager will evaluate the situation and make recommendations as to whether dust-control measures are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level.
- Appropriate dust suppression includes the use of temporary stabilising measures (e.g. environmentally friendly dust binders, straw, brush packs, chipping etc.).
- Comply with all occupational hygiene requirements.

Dust along the quarry access road:

- Truck speeds shall not exceed 35 km/h along the access road.
- Tree branches from alien clearing are to be chipped and retained as mulch and should be used as dust control on the main access road.
- All loads shall be covered with a tarpaulin or similar to prevent spillage and nuisance to other road users.
- All uneven road surfaces and/or potholes should be levelled and/or filled in a pro-active basis.

Schedule

Ongoing, throughout the life of the mine.

19.14 Noise

Noise generated during mining and rehabilitation operations must comply with the Western Cape Noise Control Regulations (Provincial Notice 200/2013 of 20 June 2013).

The following noise control measures should be implemented:

- Ensure all equipment and vehicles are well maintained.
- Restrict work to the following operating hours:
 - 6:00 to 17:00 Mondays to Fridays
 - 7:00 to 13:00 Saturday
 - Closed Saturdays and Sundays
- Comply with occupational hygiene requirements.
- The visual berm will help to screen off noise from the quarry activities.
- The conventional type reverse signal should be replaced with a low frequency type signal.
- Speed limits should be enforced along the access road.
- Equipment will be regularly maintained.
- Silencers will be installed and maintained on machinery, trucks and earth moving equipment.
- No amplified music will be allowed on the site.

Schedule

Ongoing, throughout the life of the mine.

19.15 Maintenance and fuel

No workshop is planned for the site, however if emergency maintenance is required, the Applicant must ensure that no pollution occurs. When servicing equipment, drip trays shall be used to collect the waste oil, hydraulic fluid and other lubricants.

Vehicles and equipment used in the mining operation must be adequately maintained so that no spillage of oil, diesel, petrol or hydraulic fluid occurs.

Any hazardous substances such as detergents or oils etc. shall be securely stored in a container.

The earth moving equipment will be re-fuelled using a diesel bowser. Drip trays are to be used when re-fuelling takes place to prevent any diesel spillage on the ground. All other vehicles (e.g. bakkies) will be refuelled at a company yard in an urban area (probably George) or at a commercial garage.

The Applicant shall ensure that there is always a supply of absorbent material available to absorb / breakdown / encapsulate minor hydrocarbon spills. The quantity of such materials shall be able to handle a minimum of a 200 litre hydrocarbon spill.

Used oil should be collected in a suitable container (e.g. 210 litre drums or a tank provided by the Rose Foundation). The container shall be kept in a protected and bunded area. When the container is almost full then this should be removed, either for resale or for recycling. (Oilkol collects used oil on behalf of the Rose Foundation and can be contacted at: 0860 107107).

Any effluents or waste containing oil, grease or other industrial substances must be collected in a suitable container and removed, either for resale, recycling or for appropriate disposal at a recognised facility.

Schedule

Ongoing, throughout the life of the mine.

19.16 Solid Waste Management

An integrated waste management approach, which is based on waste minimisation and incorporates reduction, recycling, re-use and disposal, where appropriate, must be used.

No on-site burying or dumping of any waste materials, litter or refuse shall occur. The Applicant will use vermin- and weather-proof bins with lids to store any solid waste. The lids shall be kept firmly on the bins at all times.

Waste will be disposed at an approved waste disposal facility.

Schedule

Ongoing, throughout the life of the mine.

19.17 Effluents

Any effluents containing oil, grease or other industrial substances must be collected in a suitable receptacle and removed from the site, either for resale, recycling or for appropriate disposal at a recognised facility.

Schedule

On-going, throughout the life of the mine.

19.18 Toilets

Chemical toilets will be used in the mining area. These facilities shall be maintained in a hygienic state and serviced regularly.

Schedule

Ongoing, throughout the life of the mine.

19.19 Access

Access to the site from the N2 National Road is to comply with SANRAL's requirements.

The speed of all vehicles on the access road must be strictly controlled to avoid dangerous conditions and excessive dust. The maximum speed for vehicles on the access road is 35 km/hour.

Appropriate dust suppression measures along the access road shall be used when dust generation is unavoidable.

Tree branches from alien clearing are to be chipped and retained as mulch and should be used as dust control on the main access road. This is the most suitable dust control method for this site.

Environmentally friendly chemical dust stabilisers such as Dustex or Dust-Tech could also be considered.

The Applicant must ensure that trucks are not overloaded when they leave the site. The sand should be covered during transportation on public roads.

If any sand accidentally spills onto the N2 National Road from trucks leaving the site, then the Applicant should send workers to clean the material off the road.

Schedule

Ongoing, throughout the life of the mine.

19.20 Heritage Resources

The Applicant must comply with the recommendations in the Heritage Impact Assessment (HIA). These are as follows:

- A fossil chance finds procedure must be included in the EMPr;
- It must be ensured that the berm is not revealed by alien vegetation clearing until such time as it has been vegetated;
- Only essential direction signage to be provided at the entrance to the site on the N2 National Road, and no billboards to be permitted; and
- If any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

Schedule

Ongoing, throughout the life of the mine.

19.21 Environmental Related Emergencies and Remediation

The Applicant will operate on the principle that “prevention is better than cure” and so will institute procedures to reduce the risk of emergencies taking place. These will include ensuring that all contracts specify that the contractor is required to comply with all the environmental measures specified in this EMPr, environmental awareness training, on-going risk assessment and emergency preparedness.

The control of emergency incidents must comply with the requirements set out in Section 30 of the National Environmental Management Act, 1998 (Act 107 of 1998).

Emergency telephone numbers

All employees shall have the telephone numbers of emergency services, including the local ambulance and firefighting service. All employees must be made aware of procedures to be followed during the environmental awareness training course.

Fire

The Applicant shall ensure that there is basic firefighting equipment available on Site at all times. This shall include at least two rubber beaters and at least one fire extinguisher.

The Applicant shall advise the relevant authority of a fire as soon as one starts and shall not wait until the fire is out of control.

Hydrocarbon spills

The Applicant shall ensure that all employees are aware of the procedures to be followed for dealing with hydrocarbon spills. The Applicant shall ensure that the necessary materials and equipment for dealing with hydrocarbon spills and leaks is available on Site at all times.

The Applicant shall ensure that there is always a supply of absorbent material readily available to absorb/ breakdown and where possible is designed to encapsulate minor hydrocarbon spillage. The quantity of such materials shall be able to handle a minimum of 200 l of hydrocarbon liquid spill.

There are a number of different products on the market, which can be used as absorbents and encapsulators of hydrocarbons. The following are examples of these products:

- Spill-Sorb
- Drizzit
- Enretech
- Peat Moss

In the event of a significant hydrocarbon spill, the following procedure is required:

- The source of the spillage shall be isolated
- The spillage must be contained using sand berms, sandbags, pre-made booms, sawdust or absorbent materials.
- The area shall be cordoned off, secured and made safe.
- If an incident has occurred then this must be reported to the Department of Environmental Affairs and Development Planning's (DEA&DP) Directorate: Pollution and Chemicals Management (Telephone: 021 483 4656).
- The Remediation and Emergency Incident Management Unit can be contacted at 021 483 0752.

Treatment and remediation of spill areas shall be undertaken to the satisfaction of the Mine Manager. Remediation may include in-situ bioremediation using appropriate products (e.g. Enretech-1) and / or the removal of the spillage together with the contaminated soil and the disposal at an appropriate waste disposal facility.

Any contaminated spill kit cleaning materials must be disposed of at a hazardous waste disposal facility.

20. MONITORING & REPORTING

20.1 Introduction

Regular monitoring of the conditions of approval of the environmental authorisation and the environmental management procedures and mitigation measures in this EMPr shall be carried out by the Applicant.

The Applicant will ensure that compliance with the conditions of the environmental authorisation and the EMPr are audited and that an environmental audit report is submitted to the competent authority (i.e. the DMR).

The environmental audit report is required to contain the information set out in Appendix 7 of the EIA Regulations, 2014 (as amended).

Schedule

The Mine Manager will monitor compliance with the conditions of the environmental authorisation and the EMPr on an on-going basis.

The environmental audit report is to be prepared by an independent person with the relevant environmental auditing expertise every two years or more frequently if required to do so by the competent authority.

20.2 Environmental Control Officer (ECO)

If an Environmental Authorisation (EA) is issued for this application then the Applicant must appoint an ECO before commencement of mining activities and ensure that the name and contact details of the ECO is made available to the Regional Manager within 30 days of commencement. The holder of EA must also ensure that an ECO is available to ensure that activities at all times comply with the issued EA and approved EMPr.

The ECO must:

- Keep and maintain a detailed incident register (including any spillages of fuels, chemicals or any other material).
- Keep a complaint register on site indicating the complaint and how the issues were addressed, what measures were taken and what preventative measures were implemented to avoid reoccurrence of complaints.
- Keep records relating to monitoring and auditing on site and avail them for inspection to any relevant authorised official.
- Keep copies of all environmental reports submitted to the Department.
- Keep records of all permits, licences and authorisations required by the operation.

20.3 Dust

The Applicant is aware that in the event of an instruction from the Air Quality Officer from the Municipality that dust fall monitoring may be called for to determine the extent of dust and fugitive dust emissions from the premises.

The National Dust Control Regulations, 2013 (GN R827 of 2013) provides the standards for acceptable dust fall rates. These are shown in the table below:

Table 23: Acceptable dust fall rates

Restriction Areas	Dust fall rate (D) (mg/m²/day, 30-days average)	Permitted frequency of exceeding dust fall rate
Residential area	D < 600	Two within a year, not sequential months
Non-residential area	600 < D < 1200	Two within a year, not sequential months

The method to be used for measuring dust fall rate and the guideline for locating sampling points shall be ASTM D1739:1970, or equivalent method recognised by an internationally recognised body.

In the event that dust fall monitoring is required then the Applicant will contract a suitable air quality specialist to install sampling / monitoring points at appropriate locations on the property boundaries.

If it is determined that the dust fall rate exceeds the Non-residential Standard then corrective action will be taken to ensure compliance.

21. ENVIRONMENTAL AWARENESS PLAN

General environmental awareness will be fostered among the project's workforce to encourage the implementation of environmentally sound practices throughout its duration. This will ensure that environmental incidents are minimised and environmental compliance maximised.

Environmental awareness will be fostered in the following manner:

- Induction course for all workers on site, before commencing work on site.
- Refresher courses as and when required
- Toolbox talks at the start of a day when workers can be alerted to particular environmental concerns associated with their tasks for that day or the area/habitat in which they are working.
- Displaying of information posters and other environmental awareness material.

The aim of training is to enable a shared understanding and common vision of the environment, the impact of the mining operation on the environment (and why this is important) and the role of mining personnel in terms of environmental management and compliance.

The induction course will consist of the following steps:

- The first step will be a background discussion about the environment: what it consists of, and how we interact with it.
- The second step will be a description of the components and phases of the mining operation.
- The third step will be a general account of how the mining operation and its associated activities can affect the environment, giving rise to Environmental Impacts.
- The fourth and most important step will be a discussion of what staff can do in order to help prevent the negative environmental impacts from degrading our environment and why the company is required to comply with the approved Environmental Management Plan.

An environmental awareness handout for mine workers is provided in **Appendix 5**.

Schedule

Employees should be provided with environmental awareness training before mining operations start. All new employees should be provided with environmental awareness training.

22. UNDERTAKING BY THE EAP

The Environmental Assessment Practitioner (EAP) herewith confirms

- a) the correctness of the information provided in the EIAR and EMPr;
- b) the inclusion of comments and inputs from stakeholders and I&APs;
- c) the inclusion of inputs and recommendations from the specialist reports where relevant;
- d) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties



Signature of the environmental assessment practitioner:

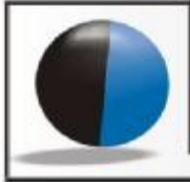
Name: Stephen Davey

Name of company: Klipberg Consulting (Pty) Ltd

Date: 25 November 2019

ANNEXURE L:

Biodiversity Assessment



BIODIVERSITY ASSESSMENT FOR THE PROPOSED MINING ACTIVITIES ON PORTION 3 OF FARM 191, WILDERNESS

In terms of Chapter 5 of the National Environmental Management Act, 1998 (Act 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014 (as amended)



Compiled by	HilLand Environmental
HilLand reference	WIL19/1008/04
Date	November 2019

HilLand Environmental
WIL19/1008/04
November 2019

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**Biodiversity assessment for the proposed mining activities on Portion 3 of farm 191,
Wilderness**

Submitted to: Klipberg Consulting (Pty) Ltd

Conditions of report use:

The report is the property of the sponsor and the author, who may publish it, in whole, provided:

1. That written approval is obtained from the author and that **HilLand Environmental** is acknowledged in the publication;
2. That **HilLand Environmental** is indemnified against any claim for damages that may result from publication;
3. The contents of this report may not be used for purposes of sale or publicity or advertisement without the prior written approval of **HilLand Environmental**.
4. That it is understood that **HilLand Environmental** accepts no responsibility for the contractor's failure to follow the recommended programme.
5. That it is understood that **HilLand Environmental** accepts no responsibility for the contractor's deviation or non-compliance to any specifications or guidelines provided in the report.
6. That it is understood that all figures, plates and diagrams are copyrighted and may not be reproduced by any means, in any form, in part or whole

1 Details of specialist

Cathy Avierinos BSc Hons in Botany Rhodes University with 27 years' experience as an Environmental Assessment Practitioner in all fields in Environmental Management, Impact Assessment, Specialist botanical input and Rehabilitation, Environmental Control and Monitoring.

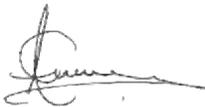
Declaration of Independence:

I, **Cathy Avierinos**, as the appointed specialist, hereby declare that:

In terms of the general requirement to be independent:

- Other than fair remuneration for work performed/to be performed in terms of this application, have no business, financial, personal or other interest in the activity or application and that there are no circumstances that may compromise my objectivity

Signature:



HillLand Environmental cc

Company

Date: 21 November 2019

2 Content of Specialist Report

Appendix 6 of the 2014 EIA Regulations (as amended) contains the required contents of a specialist report. The following checklist serves as a summary of the requirements incorporated within the report:

Requirement	Reference
(1) (a) details of— (i) the specialist who prepared the report; and (ii) the expertise of that specialist to compile a specialist report including a curriculum vitae;	Page 3
(b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	Page 3
(c) an indication of the scope of, and the purpose for which, the report was prepared; (cA) an indication of the quality and age of base data used for the specialist report; (cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Page 6
(d) the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;	Page 6
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	Page 6
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Whole report
(g) an identification of any areas to be avoided, including buffers;	See maps and text
(h) a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	See maps
(i) a description of any assumptions made and any uncertainties or gaps in knowledge;	Page 11
(j) a description of the findings and potential implications of such findings on the impact of the proposed activity or activities;	Page 27
(k) any mitigation measures for inclusion in the EMPr;	Page 31
(l) any conditions for inclusion in the environmental authorisation;	Sections 15, 16
(m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	Section 15
(n) a reasoned opinion— (i) whether the proposed activity, activities or portions thereof should be authorised; (iA) regarding the acceptability of the proposed activity or activities; and (ii) if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;	Section 17
(o) a description of any consultation process that was undertaken during the course of preparing the specialist report;	See Scoping report and Draft EIR ppp still to take place
(p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	See Scoping report
(q) any other information requested by the competent authority.	N/A

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3. Purpose and Scope of study

The following scope for the biodiversity assessment was included in the Scoping Report. “A biodiversity assessment will be undertaken to assess the impact of the proposed mining activity, to map in detail the remaining remnants of natural vegetation and to prepare a detailed rehabilitation (restoration) plan for the buffer areas and the mining area.”

4. Methodology

South Africa contains high levels of biodiversity at species and ecosystem level. This is especially true for the Garden Route Area which falls within the Cape Floral Kingdom. This is reflected on sites through their numbers of species or high ecological complexity. Depending on historic uses and the level to which sites have been previously disturbed, sites vary in their natural character and uniqueness. Assessing the potential impacts of a proposed activity such as sand mining often requires evaluating the conservation value of a site in relation to other natural areas surrounding it and relative to the national importance of the site in terms of biodiversity conservation. A simple approach to evaluating the relative importance of a site includes assessing the following:

- The uniqueness of the site in terms of natural or biodiversity features
- The importance (nationally / provincially) of protection of biodiversity features on site
- Would the proposed land use / activity on the site lead to contravention of any international, national or provincial legislation, policy, convention or regulation?

The general approach adopted for this type of study is to identify any critical biodiversity issues that may lead to the decision that the proposed activity cannot take place, i.e. to specifically focus on red flags and/or potential fatal flaws. Biodiversity issues are assessed by documenting whether any important biodiversity features occur on site, including species, ecosystems or processes that maintain ecosystems and/or species. These can be organised in a hierarchical fashion, as follows:

Species:

1. threatened plant species
2. protected trees

Ecosystems:

1. threatened ecosystems
2. protected ecosystems
3. critical biodiversity areas
4. areas of high biodiversity
5. centres of endemism

Processes:

1. corridors

2. mega-conservancy networks
3. rivers and wetlands
4. important topographical features

It is not simply the lists of species that occur on site that is important, but rather the condition of the ecosystem in general, the presence of rare or endangered species, the degree to which the habitat is already fragmented, past and surrounding land uses, conservation initiatives, and how ecological pattern and process is preserved within the landscape that must all be considered.

The focus on national and provincial priorities and critical biodiversity issues is in line with National legislation protecting environmental and biodiversity resources, including, but not limited to the following which ensure protection of ecological processes, natural systems and natural beauty as well as the preservation of biotic diversity in the natural environment:

1. Environment Conservation Act (Act 73 of 1989)
2. National Environmental Management Act, 1998 (NEMA) (Act 107 of 1998)
3. National Environmental Management Biodiversity Act, 2004. (Act 10 of 2004)

Plant species of concern

The purpose of listing Red List plant species is to provide information on the potential occurrence of species of special concern in the study area that may be affected by the proposed activity. The habitat requirements of these listed species can then be assessed and the associated likelihood of occurring within the affected area.

The South African National Biodiversity Institute (SANBI) lists were used for any species of conservation concern previously recorded in the area and any other species with potential conservation value.

The National Forests Act provides lists of protected tree species for South Africa and these are assessed to determine the likelihood of such species being recorded on the site.

Provincial and National legislation was evaluated in order to provide lists of any plant species that have protected status. The most important legislation being the National Environmental Management: Biodiversity Act (Act No 10 of 2004).

Threatened animal species are listed and can be linked to the habitat requirements of the species. As Faunal study was not within the scope of this assessment the importance of the habitat condition should not be overlooked in terms of its importance to Red Data animals have very specific habitat requirements and the degree of habitat degradation is important to the potential presence of Red Data species. Similarly, the habitat linkages / corridors / connectivity are important to the ecological functioning of such species.

The general status of the vegetation (transformed versus natural) of the study area is indicated in the available landcover data layer (Cape Farm Mapper DEA 2014

GEOTERRAIMAGE) from satellite imagery and aerial photography. The property is mapped as mostly consisting of Plantation / Mature Woodlot.

The various provincial, regional or national level conservation planning studies have been undertaken in the area, e.g. the National Spatial Biodiversity Assessment (NSBA), Critical Biodiversity Mapping, Vlok Vegmap etc and these are used to guide the assessment of the site and they define the ecological or conservation status. The site is not included in any CBA or ESA categories and the Vlok Vegmap lists it as Sedgefield Thicket Sandplain Fynbos.

Ground truthing of the site is critical to any biodiversity assessment, in addition seasonal changes in vegetation or species is essential to a biodiversity assessment. The site was visited on three occasions, February 2019 and again twice in September 2019. The September follow-up was considered important in order to note the presence of any spring flowering geophytes.

The proposed rehabilitation and restoration methods proposed have been gained from extensive local knowledge and rehabilitation projects in the Garden Route over the past 27 years.

5. Policy and Legislative context

The legislative framework for a sand mine includes both the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), and the National Environmental Management Act (Act No 107 of 1998). These are detailed within the Scoping Report and are not repeated in this specialist assessment.

In terms of NEMA various activities which may result in a significant impact on the environment have been identified that require Environmental Assessment and Environmental Authorisation prior to the activity taking place. The following listed activities have a direct impact on the vegetation of the study site and this assessment.

<p>LN1 -27.</p>	<p>The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for—</p> <ul style="list-style-type: none"> (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan. 	<p>The clearance of more than 1ha of indigenous vegetation undertaken as a result of the mining activities proposed in the various mining areas over the lifespan of the mine.</p> <p>Identification of no-go areas where NO clearing of indigenous vegetation should occur, identification of areas where vegetation clearing would be acceptable, identification of rehabilitation methods that can restore the site after mining in the areas where vegetation is cleared.</p>
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<p>LN2 - 17.</p>	<p>Any activity including the operation of that activity which requires a mining right as contemplated in section 22 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including—</p> <ul style="list-style-type: none"> (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource ; or 	<p>These proposed mining operations will see the removal of all vegetation within the mining footprint and the subsequent need for restoration / rehabilitation and the defined end use.</p> <p>Of importance is to define no-go areas, buffers, corridors to retain, plant rescue and rehabilitation. Overall conservation outcomes need to be evaluated.</p>
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	<p>(b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing;</p> <p>but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in this Notice applies.</p>	
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The following secondary activities would be triggered in terms of NEMA by the proposed development of a sand mine and would also need to be assessed.

LN1 24.	<p>The development of <u>a road</u>—</p> <p>(i) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or</p> <p>(ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres;</p> <p>but excluding <u>a road</u>—</p> <p>(a) which is identified and included in activity 27 in Listing Notice 2 of 2014;</p> <p>(b) where the entire road falls within an urban area; <u>or</u></p> <p>(c) <u>which is 1 kilometre or shorter.</u></p>	<p>SANRAL – have proposed an alternative entrance to the N2 which would require the development of a new road.</p> <p>The impact of vegetation clearance (and earthworks) along the N2 for the new intersection and the clearing of vegetation on site for the new access road through what is proposed as a vegetated buffer area.</p>
LN1 -28.	<p>Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, <u>game farming, equestrian purposes</u> or afforestation on or after 01 April 1998 and where such development:</p> <p>(i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or</p> <p>(ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;</p> <p>excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.</p>	<p>The property has been subject to afforestation in the past. The plantation is not well managed and the implications of lack of plantation management has resulted in the largescale infestation with alien invasive plant species (mostly black wattle and pine). This will need to be taken into account when planning the end use and rehabilitation potential of the site.</p>

LN3 -	<p>The development of a road wider than 4 metres with a reserve less than 13,5 metres.</p>	<p>The development of any new roads wider than 4m as the site is outside an urban area and contains indigenous vegetation. This would apply to the proposed new access off the N2.</p>
4.	<p>i. Western Cape ii) <u>Areas outside urban areas:</u></p> <p><u>(aa) Areas containing indigenous vegetation;</u></p>	

LN3 12.	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. Western Cape i. <u>Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</u> ii. <u>Within critical biodiversity areas identified in bioregional plans;</u>	Not applicable as the site is not within a CBA or Endangered / Critically Endangered Ecosystem.
LN3 18.	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre. i). Western Cape; ii) All areas outside urban areas: <u>(aa) Areas containing indigenous vegetation;</u>	The widening of any existing roads by more than 4m within indigenous vegetation. This would be applicable in association with the current access road and any widening which would be required to that road.

In addition to the legislation listed above the following is also applicable to the proposed activity.

National Forests Act (Act no 84 of 1998)

Protected trees - According to this act, the Minister may declare a tree, group of trees, woodland or a species of trees as protected. The prohibitions provide that 'no person may cut, damage, disturb, destroy or remove any protected tree, or collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a licence granted by the Minister'.

Forests - Prohibits the destruction of indigenous trees in any natural forest without a licence.

There are two protected species present on the property (Milkwood and Cheesewood). These have been mapped and any falling within the proposed mining area cannot be pruned / transplanted / damaged without the necessary DAFF permit. These trees occur within the remaining pockets of Milkwood Thicket Coastal Fynbos mosaic that occurs on the property and in the surrounding areas.

National Environmental Management: Biodiversity Act (Act No 10 of 2004)

In terms of the Biodiversity Act, the applicant has a responsibility for:

- The conservation of endangered ecosystems and restriction of activities according to the categorisation of the area (not just by listed activity as specified in the NEMA - EIA regulations).
- Promote the application of appropriate environmental management tools in order to ensure integrated environmental management of activities thereby ensuring that all development within the area are in line with ecological sustainable development and protection of biodiversity.
- Limit further loss of biodiversity and conserve endangered ecosystems.

- Control of listed alien invasive plant species.

The key implication of the NEM:BA on this site is the control of alien invasive plant species. To date the landowners have not complied with the Alien Species Regulations, nor with CARA where it applies to alien invasive species. The new landowners will have to comply with the required legislation.

Outeniqua Sensitive Coastal Areas Extension (OSCAE) regulations (ECA)

The George Municipality have verified that the property and the activity (mining) are not subject to the OSCAE regulations.

6. Assumptions, Limitations and uncertainties

Red List species are, by their nature, usually very rare and difficult to locate. Similarly, the time of the year that the assessment is undertaken, prolonged drought and a host of other factors may affect the ability to locate rare and endangered species, or to confirm their presence or absence. The habitat condition and history of transformation is used to predict the likelihood of the area supporting such species. The lists themselves are also limited to the historic records of known occurrences of species and these can never be complete. Given the status of the site, length of time of transformation (plantation), it is unlikely that any rare or endangered species remain on site. Although the site was revisited in spring after rainfall, no presence of rare or endangered species was noted.

Seed and bulbs may however still be dormant on site and as such the importance of topsoil recovery and use in rehabilitation is critical as detailed below.

7. Description of the project

The project is described as follows in the Scoping Report (Klipberg Consulting, 2019).

“ The RE of Portion 3 of Farm 121 was selected because it has not been mapped as a Critical Biodiversity Area and furthermore it has been previously transformed by pine plantations and dense woodlots. There is an existing turning lane on the N2 National Road that can provide access to the proposed Kleinkrantz Sand Quarry.

There will be a 60 m wide buffer zone between the sand quarry and the N2 National Road. The dense vegetation in this buffer zone will create a visual barrier so that the proposed sand mining activity will not be visible from the N2 National Road.

The size of the property is 9.05 hectares, however the proposed extent of the mining activities is 6.58 hectares.

The estimated duration of the proposed mining activities is approximately 20 years. A simple sand quarry is proposed, so no underground mining or sophisticated technology is required. Mining and rehabilitation will take place concurrently.

The proposed mining and associated activities are summarised as follows:

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- *Establishment of site infrastructure including the access road, site office and weighbridge.*
- *Progressive removal of alien vegetation from the site as sand mining progresses.*
- *Overburden clearing and stockpiling of topsoil using a bulldozer or front end loader.*
- *Removal of any additional overburden and storage in separate stockpiles.*
- *Excavating sand and putting it through a mobile screening plant to remove oversize material (e.g. clay) or roots and branches.*
- *Loading of sand into trucks.*
- *Recording the mass of sand loaded onto customer trucks using a weighbridge and the processing of invoices.*
- *Profiling and sloping of embankment slopes using overburden and oversize material recovered from the screening plant.*
- *Replacing topsoil, stabilising the soil and revegetation of the final embankment slopes.*
- *Sloping, shaping and revegetation of the final floor.*
- *Clearance of the remaining alien trees from the 60 m buffer zone adjacent to the N2 National Road and rehabilitation back to natural vegetation.*



Mining area plan as modified to accommodate the vegetation in the north and north eastern areas.

8. Site investigation

The site was assessed in February 2019 at which time location of remaining indigenous vegetation was determined and the initial scoping process was informed. The site was revisited in September 2019 in order to undertake the assessment of the final

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proposal which included the marking of all protected trees on site for survey purposes and assessment to ensure that no endangered species were missed during the initial survey due to seasonal variations. It must be noted that due to the extensive alien vegetation present on the property and the long history of afforestation, combined with the low rainfall (drought), it may be possible that species present on site may still not have been evident due to them being dormant at the time. For this reason and from previous experience in rehabilitation of such areas, the topsoil recovery importance is stressed and included in the rehabilitation plan proposed below. See appendix A for the list of species on site and the identification of the protected trees.

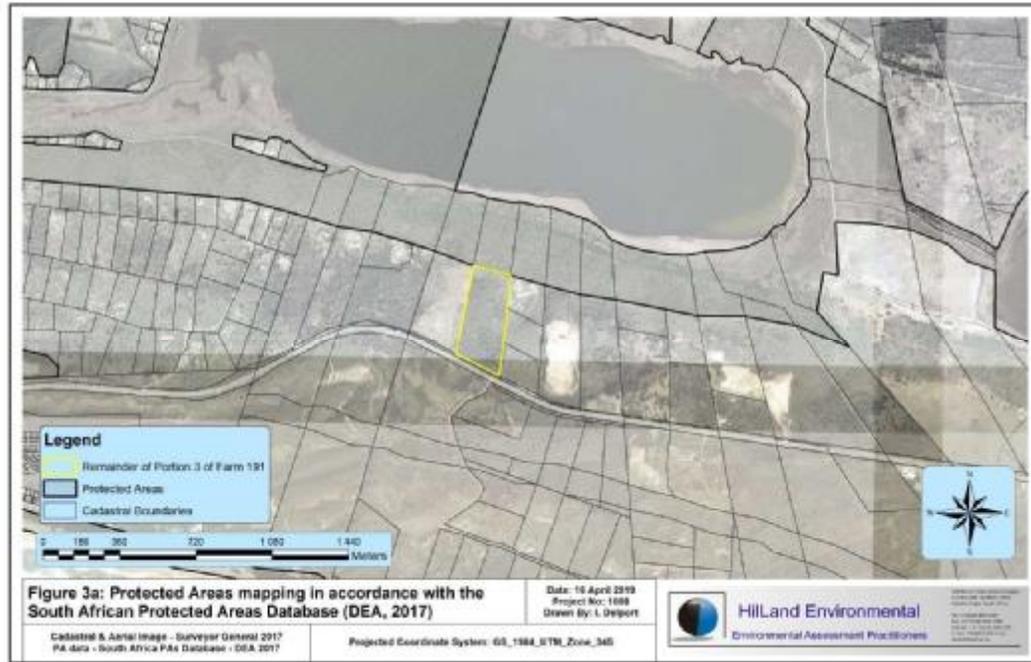


Location of protected trees on site to inform the final proposed mining area. Note, isolated protected trees within the mining area will require DAFF permit to transplant and will be transplanted into the rehabilitation areas or buffer zones as the case may be.

9. Description of the Study Area

The study site is situated south of the N2 between Wilderness and Sedgelyield as indicated in Figure 1 below. This area lies immediately south of the Garden Route National Park.

Figure 3 indicates the location of the property neighbouring the GRNP Protected Areas (north). The site, as with the rest of the Garden Route, falls into the newly proclaimed Garden Route Biosphere Reserve.



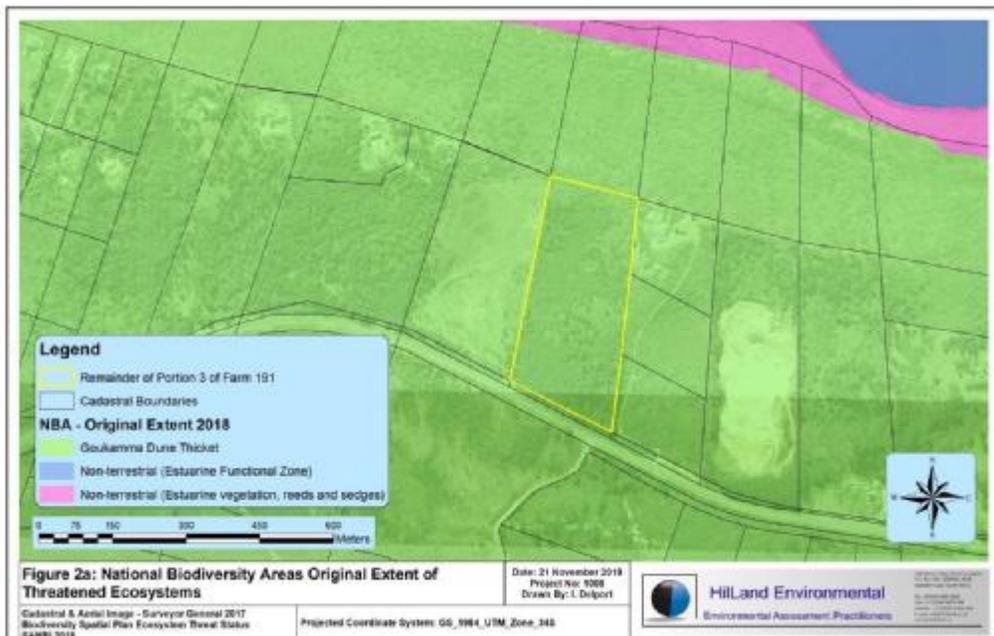
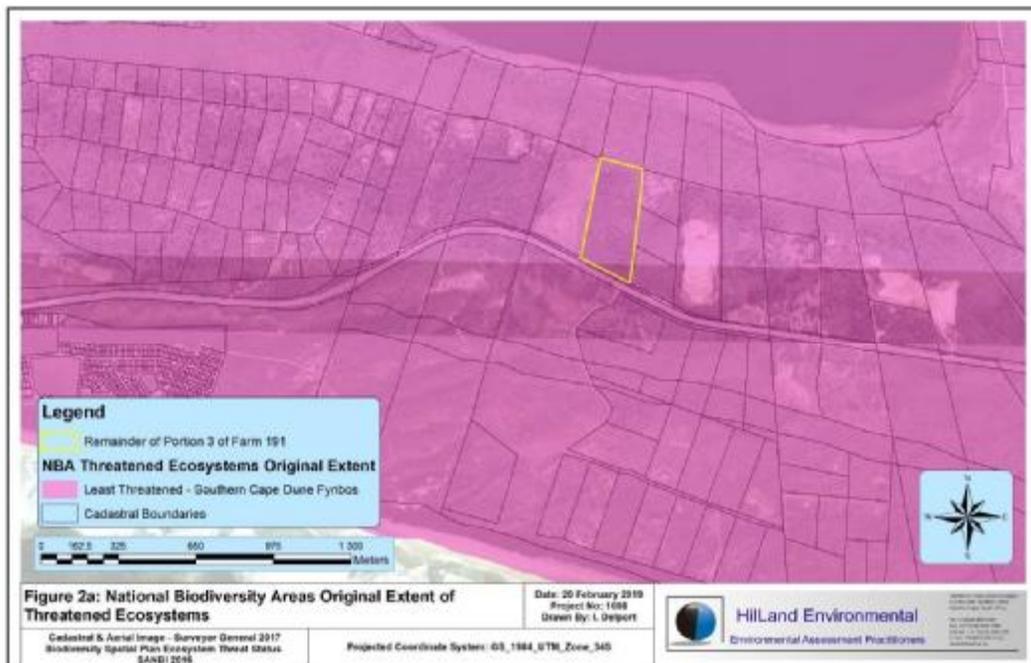
Ecosystem status

In terms of vegetation and landuse / landcover the area is mapped in the DEA landcover layer 2014 as supporting Mature Plantation and Woodlot.

It falls within the Thicket Biome according to the Low Rebelo (1998) vegetation maps and the 2009 VegMap records the Biome as being within the Fynbos Biome, South Strandveld Bioregion and within the Sand Fynbos Group. According to the Vlok Vegmap (2005-2007) the site falls within the Dune Sandplain Mosaic Thicket, Sedgefield Thicket Sandplain Fynbos Variant. Elements of the thicket and fynbos variant are present in remnant pockets along the fence line with SANParks (GRNP) and on the north eastern boundary. Isolated indigenous trees occur within the plantation and woodlot areas.

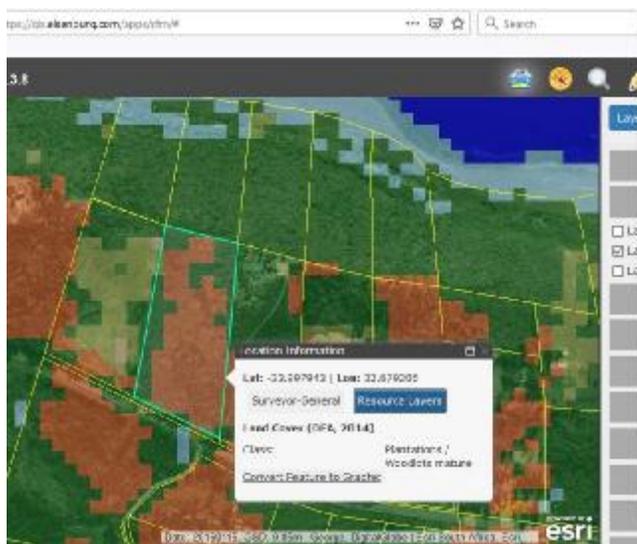
The NSBA classified the ecosystem as Southern Cape Dune Fynbos and this was gazetted in 2011 as Least Threatened with a proposed 2016 change of the status to Vulnerable due to increasing pressure and changes resulting from habitat destruction resulting in an increased threat to this vegetation unit. NBA (2018 database as supplied by CapeNature and SANBI) now lists the site as being Goukama Dune Thicket, which would be an accurate reflection of what should occur on site and to which the rehabilitation targets are planned. As the ecosystem is poorly represented on site the opportunity exists to rehabilitate it back to this thicket and fynbos mosaic as the end use after sand mining.

A budget for such rehabilitation should be set within the mining authorisation to ensure that it is adequately restored. The rehabilitation plan included in this report includes the rehabilitation of the entire mining area to its natural state as part of the phased rehabilitation process. The phased rehabilitation process will ensure that the rehabilitation takes place, is ongoing, is monitored and the success is ensured.



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The landcover DEA 2014 map shows the area transformed by plantation and woodlot and this map closely resembles the situation on site.



DEA landcover layer – Cape Farm Mapper (Elsenburg GIS)

A few isolated Coastal Thicket and Fynbos Mosaic pockets are undisturbed along the northern fence line boundary with the GRNP and on the north eastern property boundary. These areas should be retained as undisturbed outside the proposed mining area as they will act as important seed source for the restoration of the property. Young seedlings of any indigenous species within the plantation and woodlot should be transplanted into these areas or should be stored in bags in an onsite nursery for the rehabilitation / restoration phase.

Mucina & Rutherford 2006 classify the area as Southern Cape Dune Fynbos (FFd11)

Southern Cape Dune Fynbos (FFd11)

Psammophilous Macchia (Phillips 1931). VT 70 *False Macchia* (51 %) *Acocks 1953). *Maritime Heath* (Martin & Noel 1960). *South Coast Dune Fynbos* (Cowling 1984). *Mosaic of Dune Fynbos & Kaffrarian Thicket* (79%) (Moll & Bossi 1983). *Dune Fynbos* (Lubke & Van Wijk 1988). LR 4 *Dune Thicket* (82%) (Louw & Rebelo 1996). BHU 9 *St Francis Fynbos/Thicket Mosaic* (39%). BHU 8 *Goukamma Fynbos/Thicket Mosaic* (38%) (Cowling et al. 1999b, Cowling & Heijis 2001). STEP *Goukamma Dune Thicket* (46%), STEP *St. Francis Dune Thicket* (10%), STEP *Kiwane Dune Thicket* p.p. (Vlok & Euston-Brown 2002, Vlok et al. 2003).

Critical Biodiversity Areas

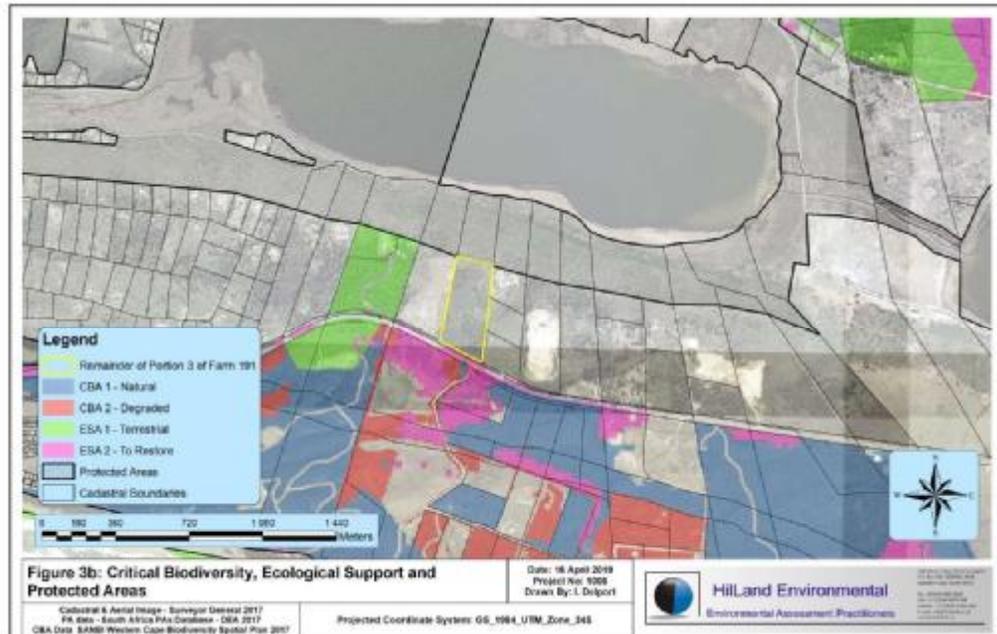
The Critical Biodiversity mapping for the site is derived from the Western Cape Biodiversity Spatial Plan 2017. This plan produced by CapeNature is described as “The Western Cape Biodiversity Spatial Plan (WCBSP) is the product of a systematic biodiversity planning assessment that delineates Critical Biodiversity Areas (CBAs) and

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Ecological Support Areas (ESAs) which require safeguarding to ensure the continued existence and functioning of species and ecosystems, including the delivery of ecosystem services, across terrestrial and freshwater realms. These spatial priorities are used to inform sustainable development in the Western Cape Province. This product replaces all previous systematic biodiversity planning products and sector plans with updated layers and features.” The importance of this plan is that it collates all the available spatial data relating to vegetation within the Western Cape. It includes the assessment of the targets that have been identified as required in order to meet the required conservation targets for each ecosystem type in the province. In many circumstances the ecosystems are already below their required targets through historic land use and habitat destruction.

The property is not mapped as forming any part of a CBA or ESA, however, caution is warned that this may be as the area was incorrectly mapped as being in the GRNP Protected Area and as such the CBA mapping “assumed” the area as protected and assigned no CBA status.

The degraded nature of the site should not be used to limit biodiversity restoration targets and it would be recommended that the post mining rehabilitation should be towards restoration of the Thicket/Fynbos mosaic of the local area. Judging from the successful restoration of neighbouring properties post sand mining, restoration is a feasible end land use. The proviso for this statement is that ongoing alien management is essential, as failure to control alien species through long-term ongoing follow-up, can see the entire revert site back to its current state.



One would expect the targets to be similar to those of the CBA mapping for terrestrial CBAs after mining.

Due to the fact that the property supports very little of the remaining natural vegetation, the restoration should be the post mining target.

Ground truthing of the site has confirmed that this site is totally transformed, with the exception of a few remaining clusters of Milkwood thicket as indicated along the northern and north eastern boundary. The property is mature pine and mature stands of Black Wattle that appear to have been managed as a wood lot (fire wood collection) over time. There is evidence of systematic fire wood collection and thinning of the woodlot, but not clearing as would be the case with alien clearing efforts.

Vegetation & Landscape Features

The vegetation is limited to the coastal dune cordons of the Southern Cape and largely occurs on the large vegetated historic dune fields (considered the tallest vegetated dunes in southern Africa) often with steep slopes where the southern slopes and valleys support dense forest and thicket while the drier northern slopes support fynbos. The vegetation remnants support this trend as they are mostly thicket species with minimal fynbos species as part of the mosaic.

As indicated above, the site has been totally transformed over time through afforestation and woodlot management. Isolated pockets of the thicket and fynbos remain.

Few remaining fynbos species can be found on site – these include *Olea exasperate*, *Metalasia muricata*, *Phyllica littoralis* and *Helichrysum petiolare*.

The remaining thicket pockets include *Pterocelastrus tricuspidatus*, *Searsia lucida*, *Sideroxylon inerme*, *Pittosporum viridiformis* and *Tarchonanthus littoralis* as the dominant species.

Protected trees in terms of the Forest Act may not be removed without a DAFF permit.

Important Taxa (Mucina et al, 2006)

The following species should be included in future rehabilitation of the mining area as they are recorded as the key species for this ecosystem:

Trees: *Sideroxylon inerme*, *Pittosporum viridiformis*, *Pterocelastrus tricuspidatus*, *Searsia (Rhus) chirendensis*

Tall Shrubs: *Diospyros dicrophylla*, *D. lycoides*, *Grewia occidentalis*, *Olea exasperate (d)*, *Passerina corymbosa*, *Searsia (Rhus) crenata*, *S. glauca*, *S. laevigata*, *S. lucida*, *Tarchonanthus littoralis*.

Low Shrubs: *Agathosma ovate (d)*, *Metalasia muricata (d)*, *Passerina rigida (d)*, *Phyllica littoralis (d)*, *Agathosmas apiculata*, *A. stenopetala*, *Anthospermum aethiopicum*, *Aspalathus spinosa subsp. spinosa*, *Chironia baccifera*, *Erica fourcadei*, *E. glumiflora*, *E. zeyheriana*, *Felicia echinata*, *Gnidia anthylloides*,

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Helichrysum teretifolium, *Indigofera sulcata*, *Jamesbrittenia microphylla*, *Leucadendron salignum*, *Morella quercifolia*, *Muraltia satureioides*, *M. squarrosa*, *Otholobium bracteolatum*, *Pelargonium betulinum*, *Phylica ericoides*, *Polygala ericaefolia*, *Struthiola parviflora*.

Semi parasitic Shrub: *Thesidium fragile*.

Geophytic. Herbs: *Satyrium princeps* (d) *Cyrtanthus loddigesianus*, *C. obliquus*.

Graminoids: *Ischyrolepis eleocharis* (d), *Ehrharta calycina*, *Ficinia dunensis*, *Ischyrolepis leptoclados*, *Pentaschistis heptamera*, *Tetraria cuspidate*, *Thamnochortus cinereus*, *Tribolium obtusifolium*.

Endemic Taxa

Low Shrubs: *Aspalathus cliffortiifolia* (possibly extinct), *Erica chloroloma*.

Succulent Shrub: *Lampranthus algoensis*.

Graminoids: *Pentaschistis barbata* subsp. *orientalis*.

Conservation Status and historic and current land uses

Although the vegetation type is gazetted (2011) as Least threatened in terms of the NSBA, the 2016 status has been proposed to be upgraded to Vulnerable due to an increase in threat to the vegetation type (WCBSP, 2017). This change in status has yet to be recorded in the government gazette.

The vegetation is no longer present on the property in any form of meaningful or viable context. It is not contributing to the required conservation targets as it has already been transformed.

The potential for restoration after mining exists and should be included in the budget for rehabilitation and as the end use.

Indications are that fire has been excluded from the area since approximately 1966 when the aerial photos tend to indicate that there had been a fire or some other disturbance to the vegetation of the area.



The aerial photo above indicates the site in context with the surrounding sand mining activity of the area and the various stages of rehabilitation / mining. The pin dates indicate of the date of the mine's first emergence as per Google aerial historical imagery and end date where applicable. Of the 4 historic sand mines in the area (white), only the western one has been fully rehabilitated and is no longer in operation as a sand mine.



Plate 1 Thicket pocket to retain outside the mining area.

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Plate 2 View from the GRNP boundary towards the mining area. Note mining should not extend beyond the pine and Black Wattle trees visible in the background of the photo.



Plate 3 GRNP boundary fence - note no variation in vegetation on either side of the fence. Grasses occur only in the firebreak (mowed area) and disturbed areas (cleared of alien vegetation)



Plate 4 Thicket vegetation adjacent to the alien woodlot. Thicket cluster to be retained.



Plate 5 Undergrowth including ferns within the thicket, compared to no undergrowth within the alien vegetation.



Plate 6 Alien invaded area. Note the seedlings of indigenous species that will need to be transplanted and stored in a nursery for rehabilitation phase or be planted directly into the disturbed gaps within the remaining thicket areas that will not be disturbed by mining.

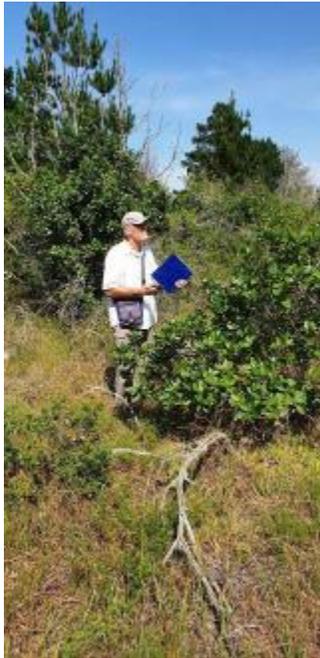


Plate 7 Young milkwood tree that will need a DAFF permit to be transplanted if not retained within the no-mining area



Plate 8 Geophytes present - *Bonatea speciosa* the wood orchid coming up within an area of wood chips. All seedlings and any geophytes are to be rescued and be transplanted either to nursery or to areas not being disturbed by mining. All topsoil must be stockpiled to preserve any dormant geophytes.



Plate 9 Degree of the alien infestation in the proposed mining area



Plate 10 alien infestation



Plate 11 Existing road leading through the alien woodlot.



Plate 12 Remaining natural vegetation to be retained in the non-mining area. Limited aliens to be removed.



Plate 13 panoramic view of the northern boundary with the GRNP



Plate 14 Typical view of the woodlot area where firewood collection has been ongoing.



Plate 15 Typical vegetation in the proposed mining area. Note the alien vegetation has biocontrol to prevent seed set.



Plate 16 View of the proposed alternative access intersection off the N2 opposite Paradise ridge turnoff – note the slope variation from the road level and the indigenous vegetation in the foreground which would be lost.

10. DESCRIPTION OF THE CURRENT LAND USES / STATUS

Site survey revealed that the site is mostly transformed plantation and alien woodlot used for firewood collection. Limited areas of the natural Mosaic of Dune Fynbos and Dune Thicket / Forest remain on the property along the northern boundary with the GRNP and along the northern part of the eastern boundary.

The density of alien vegetation would suggest that the area has been burnt which has stimulated the germination of mostly the Black Wattle seeds.

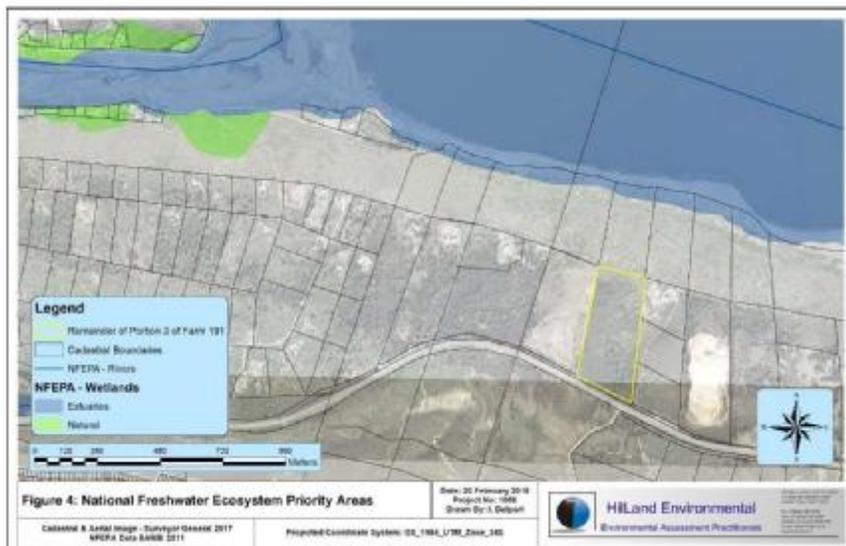
The property is not mapped as a CBA area, although this is likely to be a mapping error due to the property being erroneously mapped as Protected Area forming part of the GRNP.

Although the property is highly transformed the recommended end use rehabilitation would be to restore the natural thicket vegetation of the area and hence contribute to the conservation restoration targets.

Aquatic systems

Aquatic systems dominate this area. Ground water recharge through the extensive dune area is an important part of the system. Although there are no aquatic habitats on the property, the impact of land use activities on the ground water must be taken into consideration as activities within the source area of the local wetland systems may result in impacts previously not anticipated. Control of any contamination or spillage from equipment on site will be critically important to the wetland areas and aquifer to the north of the property. The preponderance surrounding sand mines would indicate that the risk is currently being well managed and sand mining is a

“clean” operation that does not require any washing of the resource which normally result in contamination risks.



11. Alternatives

Alternative sites were considered and are included in the Scoping Report. They are not assessed further in this report.

12. Biodiversity Issues

The following biodiversity issues were identified through the Scoping process:

- Habitat connectivity
- Maintaining corridors
- Impact on the GRNP
- Long-term conservation outcomes
- Screening with indigenous vegetation
- Removal of alien vegetation
- Buffer zone onto the GRNP
- Restoration speed – not to wait till the end of all mining to removal alien vegetation and reinstate

13. Potential Biodiversity Impacts and assessment of impacts

The following impacts were identified linked to the proposed mining activities on site:

- Loss of areas of remaining natural vegetation and protected species – avoid sensitive areas
- Loss of habitat connectivity – maintain buffers

- Loss of potential endangered species – protect topsoil, clear alien vegetation in advance
- Impact of dust on surrounding vegetation – maintain buffers and use of vegetated berms.

According to the Mitigation Hierarchy (de Villiers , 2016), it is required to follow the following when dealing with impacts –

- Seek ways to **avoid or prevent negative impacts** (e.g. provide buffers or setbacks from sensitive areas, safeguard connectivity). Avoidance measures are the simplest (and cheapest) way of mitigating impacts on biodiversity.
- **Minimize impacts** (e.g. employ measures to reduce the duration or intensity of impacts).
- **Restore or rehabilitate** disturbed or damaged areas.
- **Provide biodiversity offsets** equivalent to residual negative impacts, or compensation. Biodiversity offsets are considered a 'last resort' once all other possibilities for mitigation have been exhausted.

In terms of the above impacts the following is recommended:

- **AVOID** - Areas of remaining natural vegetation must be avoided and retained within the Buffer zones. The protected trees and remaining areas of natural vegetation were surveyed and have been included in the amended mining plan area. This has been effected through the amended mining plan that includes a 60m buffer onto the SANParks boundary as well as extended buffer to the north east. NO mining activities including stockpiles or berms or fencing, should take place within these areas.
- **RESTORE AND REHABILITATE** – The N2 buffer and the proposed 9m buffers on the east and west that are currently mostly alien vegetation should be rehabilitated and each mining block should be restored and rehabilitated after mining. See rehabilitation section below. The SANParks and North Eastern Buffers should be managed and maintained to ensure that they remain free of alien vegetation.
- N2 access should be restricted to the current access point no.47. The proposed alternative access point no. 48 will result in an unacceptable impact on the natural vegetation through the required earthworks and changes to the natural topography. The bank that would need to be removed to create a new N2 access interchange, currently supports indigenous vegetation and forms an important part of the proposed buffer along the N2 where the alien vegetation is to be removed and indigenous rehabilitation is to commence. This 60m buffer zone is an important corridor for connectivity along the N2 and forms part of the visual buffer recommended. The required changes to the topography to make allowance for a new intersection, with the required visibility constraints will result in the removal of not just the vegetation at the proposed intersection, but on either side of the intersection and in either direction of the intersection. This will effectively result in the total loss of the remaining vegetation in that area. This when there is already an intersection

off the N2, with the required turning lanes etc that has already been cleared of indigenous vegetation. The additional cumulative impact of the new proposed intersection #48 will be the requirement to close intersection #47 and create an access road for the adjacent property, resulting in the loss of further vegetation.

Alien clearing should commence immediately with the mining activities in accordance with the rehabilitation programme indicated below. All alien vegetation within the future mining phases is to be removed in order to allow the natural vegetation to restore and this restored vegetation will be used in the rehabilitation of the mining phases as they progress. This will allow any dormant endangered species to recover after the clearance of the alien vegetation and will enable sufficient time to successfully move them into the buffer areas or into a preceding rehabilitation area and ensure that they are not lost.

Dust suppression to be undertaken along haul roads to ensure that there is no impact of dust accumulation on surrounding vegetation. Use of vegetated berms within the mining area can be considered in addition to dust suppression.

Table 1: Potential Impacts on Vegetation

Impact	Proposed mitigation	Outcome
Loss of areas of remaining natural vegetation and protected species	Protect the remaining areas of natural vegetation through avoidance. Make use of existing N2 access and not create a new access. Join the local conservancy to ensure that the conservation outcomes with rehabilitation are reached.	Include in buffer areas and become part of the larger conservation outcome initiative.
Loss of habitat connectivity	Retain buffers and fence off from the active mining area phase to allow uninterrupted habitat connectivity through the buffers to surrounding corridors. Join the local conservancy to ensure that the conservation outcomes remain a priority after mining.	Maintaining buffers and connectivity. Part of the overall larger conservation outcome initiative.
Loss of potential endangered / protected species	Retain majority of protected species within the buffer zones proposed.	Avoid and protect where possible and rehabilitation where avoidance is not possible.

	<p>Transplant from the active mining phase into the rehabilitation areas or buffer zones with a DAFF permit.</p> <p>Remove alien vegetation from the areas to allow time before mining for any endangered species to emerge and then be rescued and relocated to the surrounding rehabilitation area or buffer zone.</p> <p>Protect all topsoil for use in the rehabilitation of the preceding phase.</p>	
Dust created by machinery and trucks transporting sand being deposited on surrounding vegetation.	Limit dust through management of haul roads and exposed areas.	Dust suppression.

Table 2: Significance of the impact on vegetation through sand mining

Criteria	Rating
Nature of impact	Negative and direct
Extent of impact	Site specific
Duration of impact	Medium term for the duration of mining in any particular phase
Probability of occurrence	Definite – no possible to avoid within the mining areas
Confidence	High – based on similar activities elsewhere
Degree to which impact can be reversed	Reversible after the operational phase in each mining phase through rehabilitation
Degree to which impact may cause irreplaceable loss of resources	No irreplaceable loss of resources. The areas still supporting viable vegetation communities are to be avoided completely in the buffer zones proposed and the rehabilitation of the habitat on completion of each phase will see long term return of the resource.
Significance rating of impact before mitigation	Medium (medium intensity with site specific extent and medium-term duration)
Significance rating of impact after mitigation	Medium to low assuming the implementation of all the recommended rehabilitation and the protection of the buffer zones.

14. Cumulative Biodiversity Impacts

Additional mining in the area – the cumulative impact of sand mining in the area is to be anticipated as the area is a source of the resource which is not available elsewhere. Sand mines have a limited lifespan and there should be a proactive plan within the area to identify sites suitable for mining and those which should never be mined (even with the availability of the resource) due to their biodiversity value. Although no such overarching plan is available, the alternative sites considered for the mine resulted in the selection of the property with the least biodiversity impact and one would expect any similar future mines to face the same process. The long-term conservation outcome proposed with this mine for rehabilitation and joining the local conservancy to ensure this outcome is realized, will ensure that the long-term cumulative impact of this mine contributes to the long-term conservation planning and outcomes for the area. The short-term disturbance through mining does not result in any long-term opportunity costs to conservation.

Access roads required to adjacent properties with the N2 intersection changes proposed – the proposed alternative access #48 will result in the long-term changes to traffic infrastructure and encroachment into the proposed 60m vegetated buffer zone along the N2. Although it can be argued that this is why the N2 require the buffer, there is already an access that meets the required safety considerations and which does not require the disturbance of additional vegetation within this zone.

15. Proposed Mitigation Measures

The following mitigation measures are recommended:

- Retain a 60m buffer zone with the GRNP
- Retain a 60m buffer zone on the north eastern boundary that corresponds with the vegetation surveyed.
- Retain a 60m buffer zone along the N2 and rehabilitate this to indigenous vegetation as part of the first phase of mining.
- In order to ensure the integrity of the visual buffer along the N2 the alien clearing will be phased as indicated below.
- Retain the existing N2 access and not open up an alternative access.
- Fence these buffer areas off so that there is no possible encroachment from the mining area into the buffer zones and to ensure that these areas have no change in connectivity with the neighbouring properties.
- Alien clearing to commence and be completed in accordance with the recommended plan below.

- Rehabilitation to be phased to take place as each phase is completed in accordance with the plan below.
- Owner and operator of the sand mine to join the local Conservancy to ensure continued involvement in the conservation outcomes planned for the area.
- Monitoring of alien clearing and rehabilitation to form part of the Mining compliance monitoring. ECO is recommended with rehabilitation specialist knowledge and failure to successfully undertake and manage the rehabilitation and alien clearing should prevent any continuation to a new phase of mining.

16. Rehabilitation Plan and Alien Control Plan

The proposed end use rehabilitation is to restore the natural dune thicket and fynbos mosaic vegetation of the area.

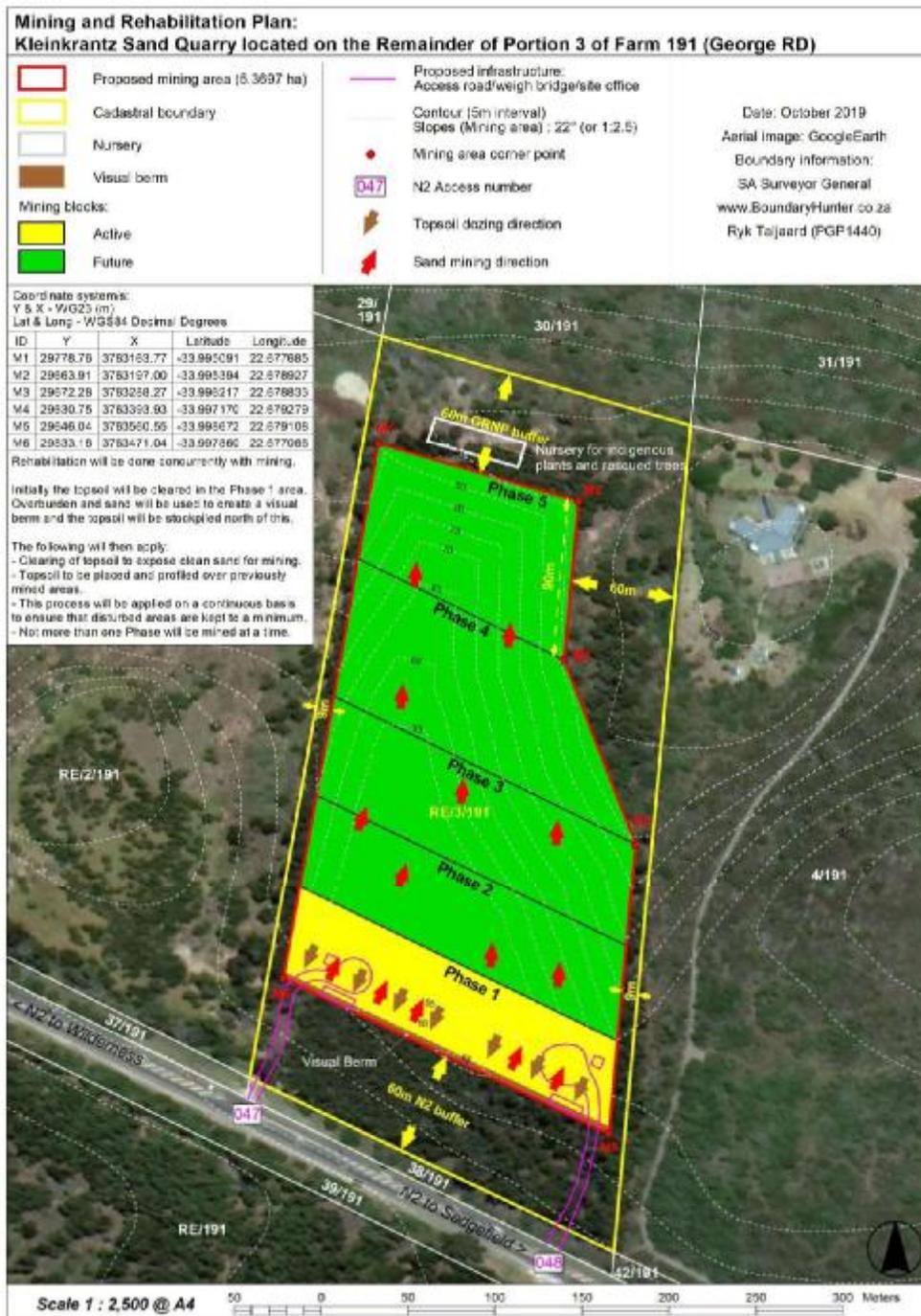
In terms of long-term conservation outcome commitment, the following has been agreed to by the landowner and operator:

“PVVK Management Services CC and the landowner commit upfront to the conservation outcomes for the sand quarry and are willing to consider joining the Paradise Ridge Conservancy. This will ensure the long-term conservation outcomes as part of a sustainable quarry operation and can involve the PRC in playing an active role in the rehabilitation successes at the proposed quarry.”



Final rehabilitation plan – area to be rehabilitated to natural dune thicket and fynbos mosaic.

In order to achieve the above conservation outcome the required rehabilitation is as follows:



Phased operation and rehabilitation as indicated below

Phase 1 Mining, N2 buffer establishment, alien clearing whole property (approximate years 1-4)

Establishing the N2 visual buffer, entrance and infrastructure area and commencement of mining.

The following procedure needs to be followed prior to any mining activities taking place on site:

- 16.1 Demarcate phase 1 and fence the area off
- 16.2 Demarcate and fence off the N2 buffer zone and the 9m buffers on either side.
- 16.3 Cut and remove of **all** alien vegetation within phase 1 (including the 9m side buffers).
- 16.4 Mark and remove the initial clearing alien trees from the N2 buffer zone. This is to include the thinning out all the young alien seedlings and saplings and mature canopy trees to be left at a density of 1 per 10m² to act as a visual screen and “nursery forest canopy” for the establishment of indigenous forest and thicket trees beneath. 6 monthly follow-up alien control is required to keep seedling alien vegetation out of this area. Each year the area is to be evaluated by the rehabilitation specialist to determine which alien trees can be removed to make canopy space for the returning indigenous trees. Biocontrol on the mature remaining Black Wattle must be present on site to prevent any new seed set.
- 16.5 Identify any protected trees within phase 1 and obtain the necessary DAFF permit to transplant.
- 16.6 Transplant any protected trees from phase 1 into the N2 rehabilitation buffer zone.
- 16.7 Transplant all indigenous seedlings and saplings from phase 1 into the N2 buffer zone. Rehabilitation specialist to assist in training and identifying what to plant where. In principle thicket species should be planted in clusters to simulate the natural growth pattern and ecological processes in the area. Fynbos species to be planted in the clear patches between the forest/thicket clusters.
- 16.8 Topsoil from phase one to be used for establishment of the N2 berm (outside the 60m buffer zone). This can include the tree stumps from alien vegetation clearing. Any surplus of topsoil from phase 1 should be stockpiled for future use at a site approved by the ECO. The vegetated root and seed layer of the topsoil from Phase 1 should be placed at the top of the berm so that the natural regrowth can occur and soil from deeper in the soil profile and stumps to be placed within the middle of the berm.
- 16.9 The stockpile is to be retained for the rehabilitation of the final phase and the working and processing area.
- 16.10 It is anticipated that the main haul road will be retained for access throughout the life of the project and will not be rehabilitated at the end of the life of the mine, but will be retained for landowner access on the property.

- 16.11 While mining phase 1 (approximately 4 years), the alien clearing of all the buffers and phase 2 – 5 needs to be undertaken by cutting and poisoning the stumps of all mature Black Wattle trees, hand pulling all seedling Black Wattle. Harvesting any remaining pine and gum trees. Poisoning the stumps of any gum trees. Timber cut can be collected and bagged as firewood and can be undertaken in consultation with the initiatives of the local Conservancy and SANParks. Hand pulling of any emerging alien invasive seedlings to take place on rotation every 6 months. All branches from alien clearing are to be chipped and retained as mulch and can be used as dust control on the main haul road.

Phase 2 Mining start and Phase 1 rehabilitation (approximate years 5-8)

Phase 2 mining preparation to commence when phase 1 is nearing completion.

The following procedure needs to be followed prior to any mining activities taking place within phase 2:

- 16.12 Remove the fence from around Phase 1
- 16.13 Identify any protected trees within Phase 2 and obtain the necessary DAFF permit to transplant.
- 16.14 Transplant any protected trees from Phase 2 into the GRNP buffer and the adjacent 9m buffers (west and east of Phase 1)
- 16.15 Transplant all indigenous seedlings and saplings from Phase 2 into the on-site nursery (established in the clear area at the GRNP buffer zone). Rehabilitation specialist to assist in training and identifying what to rescue and how to establish the nursery.
- 16.16 Topsoil from Phase 2 to be used for the rehabilitation of Phase 1. The topsoil is to be taken directly from the Phase 2 working area and spread to the same depth within the reshaped Phase 1 area.
- 16.17 A small stockpile of surplus topsoil is to be retained to repair any erosion damage. ECO to advise where to store such material.
- 16.18 The topsoil should be hydro seeded with *Cynodon dactylon* to ensure a rapid natural grass covering to prevent any erosion. The use of soil saving sausages spread and pegged along the contours may be required if the slopes are too steep.
- 16.19 A temporary irrigation system can be installed to keep the seed moist but the rehabilitation can take place without a temporary irrigation system and will occur at a slightly slower rate.
- 16.20 Alien seed will germinate initially after the disturbance of the soil and as such hand pulling of seedlings will be required on a 6 monthly basis.
- 16.21 Care will be required to not damage any emerging indigenous seed.
- 16.22 Once the grass covering is established (approximately 6 months), the rescue species from the nursery can start to be planted out into the Phase 1 rehabilitation areas.
- 16.23 In principle thicket species should be planted in clusters to simulate the natural growth pattern and ecological processes in the area. Fynbos

species to be planted in the clear patches between the forest/thicket clusters. Pioneer thicket species (*Osteospermum moniliferum*) will germinate with the grass seed initially and these should be used to identify where the thicket clusters should be planted. Rehabilitation specialist to advise.

- 16.24 Once Phase 1 rehabilitation is complete, fencing should be secured around Phase 2 – no other fencing to block the natural wildlife on site.
- 16.25 The working areas still within phase 1 that will remain operational for the life of the mine are to remain fenced.

Phase 3 Mining start and Phase 2 rehabilitation (approximate years 9-12)

Phase 3 mining preparation to commence when Phase 2 is nearing completion.

The following procedure needs to be followed prior to any mining activities taking place within phase 3:

- 16.26 Remove the fence from around Phase 2
- 16.27 Identify any protected trees within Phase 3 and obtain the necessary DAFF permit to transplant.
- 16.28 Transplant any protected trees from Phase 3 into Phase 1 (which by this stage will have 4 years of growth)
- 16.29 Transplant all indigenous seedlings and saplings from Phase 3 into the on-site nursery. ECO to assist with identifying what to rescue.
- 16.30 Topsoil from Phase 3 to be used for the rehabilitation of Phase 2. The topsoil is to be taken directly from the Phase 3 working area and spread to the same depth within the reshaped Phase 2 area.
- 16.31 A small stockpile of surplus topsoil is to be retained to repair any erosion damage. ECO to advise where to store such material.
- 16.32 The topsoil should be hydroseeded with *Cynodon dactylon* to ensure a rapid natural grass covering to prevent any erosion. The use of soil saving sausages spread and pegged along the contours may be required if the slopes are too steep.
- 16.33 Alien seed will germinate initially after the disturbance of the soil and as such hand pulling of seedlings will be required on a 6 monthly basis.
- 16.34 Care will be required to not damage any emerging indigenous seed.
- 16.35 Once the grass covering is established (approximately 6 months), the rescue species from the nursery can start to be planted out into the Phase 2 rehabilitation areas.
- 16.36 In principle thicket species should be planted in clusters to simulate the natural growth pattern and ecological processes in the area. Fynbos species to be planted in the clear patches between the forest/thicket clusters. Pioneer thicket species (*Osteospermum moniliferum*) will germinate with the grass seed initially and these should be used to identify where the thicket clusters should be planted. Rehabilitation specialist to advise.
- 16.37 Once Phase 2 rehabilitation is complete, fencing should be secured around Phase 3 – no other fencing to block the natural wildlife on site.

- 16.38 The working areas still within phase 1 that will remain operational for the life of the mine are to remain fenced.

Phase 4 Mining start and Phase 3 rehabilitation (approximate years 13-16)

Phase 4 mining preparation to commence when Phase 3 is nearing completion.

The following procedure needs to be followed prior to any mining activities taking place within phase 4:

- 16.39 Remove the fence from around Phase 3
- 16.40 Identify any protected trees within Phase 4 and obtain the necessary DAFF permit to transplant.
- 16.41 Transplant any protected trees from Phase 4 into Phase 2 (which by this stage will have 4 years of growth)
- 16.42 Transplant all indigenous seedlings and saplings from Phase 4 into the on-site nursery. ECO to assist with identifying what to rescue.
- 16.43 Topsoil from Phase 4 to be used for the rehabilitation of Phase 3. The topsoil is to be taken directly from the Phase 4 working area and spread to the same depth within the reshaped Phase 3 area.
- 16.44 A small stockpile of surplus topsoil is to be retained to repair any erosion damage. ECO to advise where to store such material.
- 16.45 The topsoil should be hydroseeded with *Cynodon dactylon* to ensure a rapid natural grass covering to prevent any erosion. The use of soil saving sausages spread and pegged along the contours may be required if the slopes are too steep.
- 16.46 Alien seed will germinate initially after the disturbance of the soil and as such hand pulling of seedlings will be required on a 6 monthly basis.
- 16.47 Care will be required to not damage any emerging indigenous seed.
- 16.48 Once the grass covering is established (approximately 6 months), the rescue species from the nursery can start to be planted out into the Phase 3 rehabilitation areas.
- 16.49 In principle thicket species should be planted in clusters to simulate the natural growth pattern and ecological processes in the area. Fynbos species to be planted in the clear patches between the forest/thicket clusters. Pioneer thicket species (*Osteospermum moniliferum*) will germinate with the grass seed initially and these should be used to identify where the thicket clusters should be planted. Rehabilitation specialist to advise.
- 16.50 Once Phase 3 rehabilitation is complete, fencing should be secured around Phase 4 – no other fencing to block the natural wildlife on site.
- 16.51 The working areas still within phase 1 that will remain operational for the life of the mine are to remain fenced.

Phase 5 Mining start and Phase 4 rehabilitation (approximate years 17-20)

Phase 5 mining preparation to commence when Phase 3 is nearing completion.

The following procedure needs to be followed prior to any mining activities taking place within phase 4:

- 16.52 Remove the fence from around Phase 4
- 16.53 Identify any protected trees within Phase 5 and obtain the necessary DAFF permit to transplant.
- 16.54 Transplant any protected trees from Phase 5 into Phase 3 (which by this stage will have 4 years of growth)
- 16.55 Transplant all indigenous seedlings and saplings from Phase 5 into the on-site nursery. ECO to assist with identifying what to rescue.
- 16.56 Topsoil from Phase 5 to be used for the rehabilitation of Phase 4 and a portion retained for rehabilitation of Phase 5.
- 16.57 A windrow of topsoil to be kept along the boundary of the GRNP buffer.
- 16.58 The remaining topsoil is to be taken directly from the Phase 5 working area and spread to the same depth within the reshaped Phase 4 area.
- 16.59 A small stockpile of surplus topsoil is to be retained to repair any erosion damage. ECO to advise where to store such material.
- 16.60 Surplus from topsoil recovery from Phase 1-4 to be retained for final rehabilitation of Phase 5.
- 16.61 The topsoil should be hydroseeded with *Cynodon dactylon* to ensure a rapid natural grass covering to prevent any erosion. The use of soil saving sausages spread and pegged along the contours may be required if the slopes are too steep.
- 16.62 Alien seed will germinate initially after the disturbance of the soil and as such hand pulling of seedlings will be required on a 6 monthly basis.
- 16.63 Care will be required to not damage any emerging indigenous seed.
- 16.64 Once the grass covering is established (approximately 6 months), the rescue species from the nursery can start to be planted out into the Phase 4 rehabilitation areas.
- 16.65 In principle thicket species should be planted in clusters to simulate the natural growth pattern and ecological processes in the area. Fynbos species to be planted in the clear patches between the forest/thicket clusters. Pioneer thicket species (*Osteospermum moniliferum*) will germinate with the grass seed initially and these should be used to identify where the thicket clusters should be planted. Rehabilitation specialist to advise.
- 16.66 Once Phase 4 rehabilitation is complete, fencing should be secured around Phase 5 – no other fencing to block the natural wildlife on site.
- 16.67 The working areas still within phase 1 that will remain operational for the life of the mine are to remain fenced.

Phase 5 – rehabilitation and closure of the mine (approximate years 21-22)

Once the mining operation in phase 5 is complete the entire area needs to be prepared for final rehabilitation and closure.

- 16.68 Final reshaping of Phase 5 and spreading of the topsoil stored for this purpose.
- 16.69 Final reshaping and removal of all mining related infrastructure on the property and spreading topsoil.
- 16.70 No imported topsoil to be used as this may contain alien invasive species.
- 16.71 Removal of all fencing.
- 16.72 The topsoil should be hydroseeded with *Cynodon dactylon* to ensure a rapid natural grass covering to prevent any erosion. The use of soil saving sausages spread and pegged along the contours may be required if the slopes are too steep.
- 16.73 Alien seed will germinate initially after the disturbance of the soil and as such hand pulling of seedlings will be required on a 6 monthly basis.
- 16.74 Care will be required to not damage any emerging indigenous seed.
- 16.75 Once the grass covering is established (approximately 6 months), the remaining rescue species from the nursery can be planted out into the Phase 5 rehabilitation area.
- 16.76 In principle thicket species should be planted in clusters to simulate the natural growth pattern and ecological processes in the area. Fynbos species to be planted in the clear patches between the forest/thicket clusters. Pioneer thicket species (*Osteospermum moniliferum*) will germinate with the grass seed initially and these should be used to identify where the thicket clusters should be planted. Rehabilitation specialist to advise.
- 16.77 Once Phase 5 rehabilitation is complete, the rehabilitation specialist is to evaluate the area and determine if any additional plant material is required for rehabilitation and this will need to be sourced from commercial sources.
- 16.78 It is anticipated that the nursery area will remain for use of the landowner as a potential site to build a primary dwelling.
- 16.79 The remaining road providing access to the nursery site will be retained.
- 16.80 Alien clearing follow-up will continue every 6 months into the future but will no longer be the responsibility of the mining operator but that of the landowner.

Ongoing alien management

Alien management will commence in year 1 and will continue for the life of the property. See Appendix for the alien control plan that provides the information to accompany this report.

17. Conclusion

The specialist assessment of the site has indicated the area which are to be avoided and provided recommendations and mitigation measures for the rehabilitation and alien management of the mining area and the buffers.

It is the opinion of the specialist that mining this site will not lead to irreplaceable loss of resources and should the mitigation and rehabilitation measures be followed as prescribed, the property will contribute to the long-term conservation outcome that is required for the area and specifically as requested by SANParks and the Paradise Ridge Conservancy.

It is our recommendation that the landowner and mining operator become members of the PRC in order to ensure that the Conservation Outcomes remain a high priority in the mining operation and the long-term goals for conservation of the area in general are entrenched in the principles of the mining operation itself.

In addition it is our recommendation that the landowner becomes a member of the local FPA in order to receive the required guidance and advise in relation to fire breaks on the property.

18. References

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Appendices

Appendix A	Species lists
Appendix B	Alien Control Plan

Appendix A

Table 1: Indigenous species listed to occur within the Southern Cape Dune Fynbos (**bold**-species noted on site) (Mucina and Rutherford, 2006)

Species indicated to occur within the vegetation type	
Red listed species	Other species
<i>Acmadenia alternifolia</i>	<i>Agathosma apiculata</i>
<i>Agathosma muirii</i>	<i>Agathosma ovata</i>
<i>Argyrobium velutinum</i>	<i>Agathosma tenopetala</i>
<i>Babiana nana</i>	<i>Anthospermum aethiopicum</i>
<i>Brunsvigia litoralis</i>	<i>Aspalathus cliffortiifolia</i>
<i>Capeochloa cincta</i>	<i>Aspalathus spinosa</i>
<i>Diastella proteoides</i>	<i>Chironia baccifera</i>
<i>Disa hallackii</i>	<i>Cyrtanthus loddigesianus</i>
<i>Disa lugens</i>	<i>Cyrtanthus obliquus</i>
<i>Disa procera</i>	<i>Erica chloroloma</i>
<i>Erica chloroloma</i>	<i>Erica fourcadei</i>
<i>Erica glandulosa</i>	<i>Erica glumiflora</i>
<i>Erica glumiflora</i>	<i>Erica zeyheriana</i>
<i>Erica zeyheriana</i>	<i>Felicia echinata</i>
<i>Freesia viridis</i>	<i>Gnidia anthyloides</i>
<i>Gladiolus vaginatus</i>	<i>Helichrysum teretifolium</i>

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<i>Haworthia parksiana</i>	<i>Indigofera sulcata</i>
<i>Lampranthus fergusoniae</i>	<i>Ischyrolepis eleocharis</i>
<i>Lebeckia gracilis</i>	<i>Jamesbrittenia microphylla</i>
<i>Limonium purpuratum</i>	<i>Lampranthus algoensis</i>
<i>Moraea australis</i>	<i>Leucadendron salignum</i>
<i>Muraltia mitior</i>	<i>Metalasia muricata</i>
<i>Nanobubon hypogaeum</i>	<i>Morella quercifolia</i>
<i>Pentameris barbata</i>	<i>Muraltia satureioides</i>
<i>Rapanea gilliana</i>	<i>Muraltia squarrosa</i>
<i>Ruschia indecora</i>	<i>Olea exasperata</i>
<i>Satyrium hallackii</i>	<i>Otholobium bracteolatum</i>
<i>Satyrium princeps</i>	<i>Passerina corymbosa</i>
<i>Selago rotundifolia</i>	<i>Passerina rigida</i>
<i>Selago villicaulis</i>	<i>Pelargonium betulinum</i>
<i>Wahlenbergia neostricta</i>	<i>Pentaschistis barbata</i>
<i>Wahlenbergia polyantha</i>	<i>Pentaschistis heptamera</i>
	<i>Phyllica ericoides</i>
	<i>Phyllica litoralis</i>
	<i>Polygala ericaefolia</i>
	<i>Searsia (Rhus) crenata</i>
	<i>Searsia (Rhus) glauca</i>
	<i>Searsia (Rhus) laevigata</i>
	<i>Searsia (Rhus) lucida</i>
	<i>Struthiola parviflora</i>
	<i>Tetragia cuspidata</i>
	<i>Tetragia hamnohortus cinereus</i>
	<i>Thesidium fragile</i>
	<i>Tribolium obtusifolium</i>

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Table 2: Indigenous species noted on site in addition to those indicated above.

Species name
<i>Agathosma ovata</i>
<i>Albuca cooperi</i>
<i>Anthospermum aethiopicum</i>
<i>Aristea sp</i>
<i>Artemisia afra</i>
<i>Asparagus sp</i>
<i>Azima tetracantha</i>
<i>Bonatea speciosa</i>
<i>Carex species</i>
<i>Carissa bispinosa</i>
<i>Carpobrotus edulis</i>
<i>Chasmanthe aethiopica</i>
<i>Cheilanthes viridis</i>
<i>Chrysanthemoides monilifera</i>
<i>Diospyros dichrophylla</i>
<i>Ehrharta vilosa</i>
<i>Euclea racemosa</i>
<i>Erica sp</i>
<i>Felicia amoena</i>
<i>Felicia echinata</i>
<i>Ficinia lateralis</i>
<i>Geranium incanum</i>
<i>Grewia occidentalis</i>
<i>Gymnosporia buxifolia</i>
<i>Helichrysum cymosum</i>
<i>Helichrysum patulum</i>
<i>Helichrysum teretifolium</i>
<i>Hellmuthia membranacea</i>
<i>Hypoestes species</i>
<i>Indigofera heterophylla</i>
<i>Jamesbrittenia microphylla</i>
<i>Lessertia frutescens</i>
<i>Metalsia muricata</i>
<i>Mystroxyton aethiopicum</i>
<i>Ornithogalum sp</i>
<i>Osyris compressa</i>
<i>Oxalis species x 2</i>
<i>Passerina rigida</i>
<i>Pelargonium capitatum</i>
<i>Pterocelastrus tricuspidatus</i>
<i>Polygala myrtifolia</i>
<i>Rubia petiolaris</i>
<i>Schotia afra</i>
<i>Scutia myrtina</i>
<i>Searsia (Rhus) crenata</i>
<i>Searsia (Rhus) lucida</i>
<i>Senecio 'Albert</i>
<i>Sideroxyton inerme</i>
<i>Solanum africanum</i>
<i>Solanum linnaeanum</i>
<i>Sutherlandia frutescens</i>
<i>Thamnochortus camphorata</i>
<i>Vernonia capensis</i>
<i>Zygophyllum morgsana</i>

Table 3 – species recorded as present within the area (SANBI, POSA quarter degree information)

Species name	Status	Habit	Notes
<i>Abutilon sonneratianum</i>	LC	Shrub	
<i>Adenogramma glomerata</i>	LC	Herb	
<i>Agathosma ovata</i>	LC	Dwarf Shrub	
<i>Aira cupaniana</i>	NE	Graminoid	
<i>Albuca cooperi</i>	No status	Geophyte	
<i>Anemone vesicatoria</i>	LC	Creepers	
<i>Annesorhiza macrocarpa</i>	LC	Herb	
<i>Anredera cordifolia</i>	NE	Succulent Climber	Not indigenous
<i>Anthospermum aethiopicum</i>	LC	Shrub	
<i>Anthospermum galioides</i>	LC	Dwarf Shrub	
<i>Aristea ensifolia</i>	LC	Herb	
<i>Aspalathus macrantha</i>	EN	Shrub, Tree	
<i>Aspalathus setacea</i>	LC	Shrub	
<i>Asparagus setaceus</i>	LC	Shrub	
<i>Asparagus volubilis</i>	LC	Climber	
<i>Athanasia quinqueidentata</i>	LC	Shrub	
<i>Capeochloa arundinacea</i>	LC	Grass, Shrub	
<i>Carissa bispinosa</i>	LC	Shrub	
<i>Carpacoce scabra</i>	LC	Dwarf Shrub	
<i>Centella affinis</i>	LC	Herb	
<i>Chaenostoma integrifolium</i>	LC	Dwarf Shrub	
<i>Cheilanthes viridis</i>	LC	Lithophyte, Geophyte, Herb	
<i>Chrysocoma ciliata</i>	LC	Shrub	
<i>Cliffortia dispar</i>	LC	Shrub	
<i>Cliffortia esterhuyseniae</i>	LC	Shrub	
<i>Clutia ericoides</i>	LC	Herb, Dwarf Shrub	
<i>Clutia pterogona</i>	LC	Shrub	
<i>Conyza pinnata</i>	None	Herb	
<i>Crassothonna alba</i>	LC	Succulent, Dwarf Shrub	
<i>Crassula multiflora</i>	None	Succulent, Dwarf Shrub	
<i>Crassula pellucida</i>	None	Scrambler, Succulent, Herb	
<i>Crassula southii</i>	None	Succulent, Herb	
<i>Cullumia decurrens</i>	LC	Dwarf Shrub	
<i>Cynodon transvaalensis</i>	LC	Gaminoid	

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<i>Cyperus brevis</i>	LC	Mesophyte, Cyperoid, Helophyte, Herb	
<i>Cyperus sphaerospermus</i>	LC	Mesophyte, Cyperoid, Herb	
<i>Cyperus textilis</i>	LC	Helophyte, Emergent, Hydrophyte, Cyperoid, Herb	
<i>Delosperma sp.</i>	None	Succulent	
<i>Dipogon lignosus</i>	LC	Climber, Herb	
<i>Disa bracteata</i>	LC	Geophyte, Herb	
<i>Dischisma ciliatum</i>	LC	Dwarf Shrub	
<i>Ehrharta calycina</i>	LC	Graminoid	
<i>Ehrharta erecta</i>	LC	Graminoid	
<i>Ehrharta sp.</i>	LC	Grass Shrub	
<i>Erica axillaris</i>	LC	Shrub	
<i>Erica glumiflora</i>	VU	Shrub	
<i>Eriospermum sp.</i>	None	Succulent	
<i>Euryops linifolius</i>	LC	Shrub	
<i>Facelis retusa</i>	None	Herb	
<i>Felicia echinata</i>	LC	Shrub	
<i>Festuca scabra</i>	LC	Graminoid	
<i>Ficinia bulbosa</i>	LC	Mesophyte, Cyperoid, Herb	
<i>Ficinia deusta</i>	LC	Mesophyte, Cyperoid, Herb	
<i>Ficinia laciniata</i>	LC	Mesophyte, Cyperoid, Herb	
<i>Ficinia lateralis</i>	LC	Mesophyte, Cyperoid, Herb	
<i>Ficinia nigrescens</i>	LC	Mesophyte, Cyperoid, Herb	
<i>Ficinia oligantha</i>	LC	Mesophyte, Cyperoid, Herb	
<i>Ficinia secunda</i>	LC	Mesophyte, Cyperoid, Herb	
<i>Fumaria muralis</i>	None	Herb	
<i>Geranium schlechteri</i>	LC	Scrambler, Herb	
<i>Gladiolus rogersii</i>	LC	Geophyte, Herb	
<i>Gymnanthemum capensis</i>	None	Dwarf Shrub	
<i>Harpochloa falx</i>	LC	Graminoid	
<i>Helichrysum anomalum</i>	LC	Dwarf Shrub	
<i>Helichrysum cymosum</i>	LC	Herb, Shrub	
<i>Helichrysum moesianum</i>	LC	Herb	
<i>Helichrysum odoratissimum</i>	None	Herb, Shrub	
<i>Helichrysum rugulosum</i>	LC	Herb	
<i>Helichrysum teretifolium</i>	LC	Dwarf Shrub, Shrub	

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<i>Heliophila subulata</i>	LC	Herb, Dwarf Shrub	
<i>Hermannia angularis</i>	LC	Dwarf Shrub	
<i>Hypochaeris radicata</i>	None	Herb	Not indigenous
<i>Hypodiscus striatus</i>	LC	Restoid, Dwarf Shrub	
<i>Hypoxis villosa</i>	NE	Geophyte	
<i>Indigofera depressa</i>	LC	Herb	
<i>Indigofera filipes</i>	LC	Herb, Dwarf Shrub, Shrub	
<i>Indigofera hedyantha</i>	LC	Herb	
<i>Indigofera incana</i>	LC	Herb, Dwarf Shrub	
<i>Isolepis marginata</i>	LC	Helophyte, Mesophyte, Cyperoid, Herb	
<i>Ixia orientalis</i>	LC	Geophyte, Herb	
<i>Kedrostis nana</i>	LC	Succulent, Climber, Herb	
<i>Lampranthus spectabilis</i>	LC	Succulent	
<i>Lauridia tetragona</i>	LC	Scrambler, Shrub	
<i>Lebeckia sepiaria</i>	LC	Herb	
<i>Lessertia brachystachya</i>	LC	Dwarf Shrub	
<i>Lotus subbiflorus</i>	NE	Herb	
<i>Mellilotus albus</i>	NE	Herb	
<i>Mesembryanthemum aitonis</i>	LC	Succulent	
<i>Mohria caffrorum</i>	LC	Lithophyte, Geophyte, Herb	
<i>Montinia caryophyllacea</i>	LC	Shrub	
<i>Muraltia vulpina</i>	LC	Dwarf Shrub, Shrub	
<i>Oncosiphon piluliferus</i>	LC	Herb	
<i>Ornithopus sativus</i>	NE	Herb	Not Indigenous
<i>Osteospermum imbricatum</i>	LC	Suffrutex, Shrub	
<i>Oxalis imbricata</i>	None	Herb	
<i>Oxalis pillansiana</i>	DD	Geophyte	
<i>Oxalis uliginosa</i>	EN	Geophyte	
<i>Panicum deustum</i>	LC	Graminoid	
<i>Paspalum dilatatum</i>	NE	Graminoid	
<i>Paspalum vaginatum</i>	LC	Graminoid	
<i>Passerina corymbosa</i>	LC	Dwarf Shrub, Shrub	
<i>Pelargonium capitatum</i>	LC	Dwarf Shrub, Shrub	
<i>Pentameris glandulosa</i>	LC	Grass	
<i>Pharnaceum incanum</i>	LC	Dwarf Shrub	
<i>Phylla axillaris</i>	None	Dwarf Shrub, Shrub	
<i>Plecostachys serpyllifolia</i>	LC	Dwarf Shrub	
<i>Podalyria sericea</i>	VU	Shrub	

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<i>Polypodium ensiforme</i>	LC	Shrub	
<i>Pseudognaphalium luteoalbum</i>	LC	Herb	
<i>Rafnia racemosa</i>	None	Shrub	
<i>Relhania calycina</i>	LC	Shrub	
<i>Restio capensis</i>	LC	Restoid, Dwarf Shrub, Shrub	
<i>Restio eleocharis</i>	LC	Restoid, Dwarf Shrub, Shrub	
<i>Restio triticeus</i>	LC	Restoid, Dwarf Shrub, Shrub	
<i>Rhynchosia capensis</i>	LC	Climber, Herb	
<i>Romulea fibrosa</i>	LC	Geophyte, Herb	
<i>Romulea sp.</i>	None	Geophyte, Herb	
<i>Rumohra adiantiformis</i>	None	Litophyte, Epiphyte, Geophyte, Herb	
<i>Samolus valerandi</i>	LC	Hydrophyte, Herb	
<i>Satyrium acuminatum</i>	LC	Geophyte, Herb	
<i>Satyrium princeps</i>	VU	Geophyte, Herb	
<i>Schizaea pectinata</i>	None	Litophyte, Geophyte, Herb	
<i>Schoenoplectus triqueter</i>	None	Cyperoid, Helophyte, Emergent, Hydrophyte, Herb	
<i>Scirpoides thunbergii</i>	LC	Cyperoid, Helophyte, Herb	
<i>Scutia myrtina</i>	LC	Tree, Shrub	
<i>Searsia laevigata</i>	None	Shrub	
<i>Selago glomerata</i>	LC	Shrub, Dwarf Shrub	
<i>Selago luxurians</i>	LC	Dwarf Shrub, Shrub, Herb	
<i>Selago sp.</i>	None	Herb	
<i>Senecio burchellii</i>	LC	Dwarf Shrub, Shrub	
<i>Senecio deltoideus</i>	LC	Scrambler, Herb	
<i>Senecio glastifolius</i>	LC	Dwarf Shrub, Shrub	
<i>Senecio ilicifolius</i>	LC	Herb, Shrub	
<i>Senecio rosmarinifolius</i>	LC	Dwarf Shrub, Shrub	
<i>Setaria sphacelata</i>	LC	Graminoid	
<i>Sonchus dregeanus</i>	LC	Herb	
<i>Stachys aethiopica</i>	LC	Herb	
<i>Stellaria media</i>	None	Herb	Not Indigenous
<i>Stipagrostis zeyheri</i>	LC	Graminoid	
<i>Teedia lucida</i>	LC	Herb, Dwarf Shrub, Shrub	
<i>Tephrosia capensis</i>	LC	Herb	

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<i>Tetragia cuspidata</i>	NE	Helophyte, Mesophyte, Cyperoid, Herb	
<i>Tetragia sylvatica</i>	LC	Mesophyte, Cyperoid, Herb	
<i>Thamnochortus erectus</i>	LC	Restoid, Dwarf Shrub, Shrub	
<i>Thamnochortus glaber</i>	LC	Restoid, Dwarf Shrub	
<i>Thesium minus</i>	None	Herb	
<i>Thesium patulum</i>	LC	Shrub, Parasite, Herb	
<i>Trachyandra affinis</i>	LC	Succulent, Geophyte	
<i>Trachyandra revoluta</i>	LC	Succulent, Geophyte	
<i>Trichocephalus stipularis</i>	None	Shrub, Dwarf Shrub	
<i>Ursinia chrysanthemoides</i>	LC	Herb	
<i>Vicia sativa</i>	NE	Climber, Herb	Not Indigenous
<i>Wachendorfia thysiflora</i>	LC	Geophyte	
<i>Wahlenbergia campanuloides</i>	LC	Herb	
<i>Wahlenbergia desmantha</i>	LC	Dwarf Shrub	
<i>Wahlenbergia polyantha</i>	VU	Dwarf Shrub	
<i>Zaluzianskya capensis</i>	LC	Herb	

Key	
LC	Least Concern
NE	Not Evaluated
EN	Endangered
VU	Vulnerable
None	No status given by SANBI

Appendix A: Indigenous plant species surveyed on the Remainder of Portion 3 of Farm 191, Wilderness

Survey dates: 19 February 2019 and 09 September 2019

Species name	Common name
<i>Anthospermum aethiopicum</i>	
<i>Asparagus aethiopicus</i>	Wild asparagus
<i>Asplenium rutifolium</i>	Carrot fern
<i>Azima tetracantha</i>	Needlebush
<i>Bonatea speciosa</i> (single specimen)	Green wood orchid
<i>Carpobrotus edulis</i>	Sour fig
<i>Clausena anisata</i>	Horsewood
<i>Diospyros dichrophylla</i>	Star-apple
<i>Erica</i> species	
<i>Grewia occidentalis</i> var. <i>occidentalis</i>	Crossberry
<i>Gymnosporia buxifolia</i>	Spikethorn
<i>Halleria lucida</i>	Tree-fuchsia
<i>Helichrysum patulum</i>	Honey everlasting
<i>Helichrysum petiolare</i>	Silver bush everlasting
<i>Helichrysum teretifolium</i>	Dune scrub everlasting
<i>Heliophila suavissima</i>	Pepperbossie
<i>Ischyrolepis leptocladus</i>	
<i>Metalasia muricata</i>	Coast metalasia
<i>Nidorella ivifolia</i> (= <i>Conyza scabrida</i>)	Oven bush
<i>Nuxia floribunda</i>	Forest-elder
<i>Olea exasperata</i>	Dune olive
<i>Osteospermum moniliferum</i> (= <i>Chrysanthemoides monilifera</i>)	Bietou
<i>Osyris compressa</i>	Cape sumach
<i>Pelargonium</i> species	
<i>Pittosporum viridiflorum</i>	Cheesewood
<i>Pteridium aquilinum</i>	Bracken fern
<i>Pterocelastrus tricuspidatus</i>	Candlewood
<i>Rumohra adiantiformis</i>	Leather leaf fern
<i>Searsia crenata</i>	Dune crowberry
<i>Searsia laevigata</i>	Doringtaibos
<i>Searsia lucida</i>	Glossy crowberry
<i>Sideroxylon inerme</i>	Milkwood
<i>Tarchonanthus littoralis</i>	Coastal camphor bush

Appendix B: Alien invasive plant control plan

1 Listed alien invasive species surveyed

The NEM:BA listed alien invasive plant species surveyed on the Remainder of Portion 3 of Farm 191 were recorded in Table 1, according to scientific-, common names and the category listed in the NEM:BA Alien and Invasive Species list (October, 2014). Recommendations will be given (refer to Section 3 and Annexure A1) on the control of invasive alien plants present on the property.

The invasive alien plant species listed will be updated frequently to include any new and / or secondary infestations as and when detected.

Table 1: NEM:BA listed (October 2014) alien invasive species present on the property

Plant species name	Common name	NEM:BA Category
<i>Acacia cyclops</i>	Red eye wattle (Rooikrans)	1b
<i>Acacia mearnsii</i>	Black Wattle	2
<i>Eucalyptus</i> species	Gum species	1 b
<i>Pinus</i> species	Pine species	2 for plantations and wind-rows 1 b for elsewhere
<i>Solanum mauritianum</i>	Bugweed	1 b

2 Legal framework

National Environmental Management: Biodiversity Act, 2004 (Act No.10 of 2004)

Category 1a: Compulsory control is required and needs to be eradicated from the environment. No permits will be issued for species falling under this category.

Category 1b: Species falling under this category has a high invasive potential and need compulsory control. No permits will be issued for species falling under this category.

Category 2: A permit is needed in order to keep these plant species.

Category 3: These invasive species can be kept and must be controlled, but may not be sold or propagated.

3 Methods to be implemented

It is important to ensure that **no heavy machinery** is used for alien invasive plant clearing. Wood suitable for firewood will be stockpiled for domestic use, branches will be chipped and used as mulch, and this will reduce the fuel load on the property. Seedlings pulled out can be left to decompose.

Table 2: Methods to be employed for the control of listed alien invasive species present on the property

Group	Species name	Common name	Common methods	Source of control methodology
Plant	<i>Acacia cyclops</i>	Red eye wattle (Rooikrans)	Seedling: Hand-pull Seedlings, saplings and coppice: Foliar spray Young: Lopping / pruning Adult: cut stump / frill	Working for Water program's approved methods for the control of <i>Acacia cyclops</i>
	<i>Acacia mearnsii</i>	Black Wattle	Seedling: Hand-pull Seedlings, saplings and coppice: Foliar spray >2 m tall and coppice: Spot spray Adult/mature: Bark strip. Cut stump, frill with herbicide treatment after	Working for Water program's approved methods for the control of <i>Acacia mearnsii</i>
	<i>Eucalyptus</i> species	Gum species	Seedling: Hand-pull Seedlings, saplings and coppice: Foliar spray Adult/mature: Cut stump or fell with herbicide treatment after	Working for Water program's approved methods for the control of <i>Eucalyptus</i> species
	<i>Pinus</i> species	Pine species	Cut down low or ring bark	Working for Water program's approved methods for the control of <i>Pinus</i> species
	<i>Solanum mauritianum</i>	Bugweed	Seedlings: Hand-pull Seedlings 0.5 to 1 m and Coppice: Foliar spray Mature: Cut stump or frill	Working for Water program's approved methods for the control of <i>Solanum mauritianum</i>

4 Follow-up intervals

The follow-up interval is detailed in the below table and should be strictly implemented.

Table 3: Follow-up intervals

PROGRAM	TIMING
First follow up	Must take place and be completed within 3 - 6 months after the initial clearing
Second follow up	Must take place and be completed within 3 - 6 months after the completion of the first follow up
Third follow up	Must take place through the first spring after the completion of the second follow up
Fourth follow up	Must take place annually midway through spring, where the first spring will be after the third follow up and into perpetuity

5 Annexure A1: Control methods

The following Annexure deals with the initial clearance activities along with the proposed methodology. It assumes the following:

- That the recommended methodology that is proposed below is followed.
- That the funding allows for short- and long-term commencement of the tasks.
- No thorough provisions have been made for natural occurrences for instance wildfires, floods and droughts.
- That person(s) undertaking the task of clearance and control are suitably trained and experienced.

Depending on species, age/size of the plant and growth form, the following methods can be used for the initial clearance of the alien invasive plants:

Hand pulling

This method is the removal on alien invasive plants by hand. It is important to ensure that the roots are also removed.

This method can be applied to areas that are sparsely invaded and seedlings present within each unit.

Foliar spraying

This method is the usage of spray equipment, such as a knapsack sprayer, to spray alien invasive plants one (1) meter in height or that is still at a young age. The foliage/leaves of the plants should be sprayed by the herbicide-water mixture up until it starts to run off. This method is most effective early mornings on a wind-still day. It is important that the correct protective equipment (PPE) (refer to Annexure C)

should be worn at all times and the proper methodology should be followed. For the use of the correct herbicides, refer to the below table.



Figure 1: Herbicide application to foliage of alien invasive plants (conservation contracts northwest, 2018)

The following Table should be completed to maintain usage record.

Table 4: Herbicide control sheet

Herbicide Control Sheet							
Manageable Unit:						Hectares:	
Date	Herbicide (name)	Actipron	Dye				

Mechanical control methods

Felling

Trees with a stem diameter of more than 200 mm can be felled with a chainsaw, the remaining stump should be treated with an herbicide application immediately after cutting. All felled tree stumps should be cut into manageable log sizes and be transported manually out of the area (store as firewood). Large stumps can be kept within the units for erosion control and natural decay.

Manual control methods

Trees with a stem diameter of less than 200 mm can be cut down with a chainsaw / bow saw / skill saw, whereas stems with a diameter of less than 100 mm can be cut down with a lopper or can be pulled out using a tree popper. These trees must be cut as low as possible to the ground, as low as 10 cm or lower.

Herbicide cut stump treatment

A two-litre spray marker can be used for small trees and knapsacks for larger trees. The herbicides should be applied to the stumps immediately after felling/cutting (see below figure).



Figure 2: Herbicide application to stump directly after felling / cutting (DEADP, 2018)

Frilling

This method uses a bush knife/axe to make angled cuts downwards into the trees' cambium layer (see below figure for an example of a frilled tree). Cuts should be made around the entire stem. Herbicide is applied to the cutline with a marker dye to show where herbicide has been applied.



Figure 3: Frilled tree (DEADP, 2018)

Ring barking

For this method the bark of the tree is stripped from the bottom (below ground level) to a height of 0.75 - 1 m, by using bush knives or hatchets. If this method is not possible, due to exposed root systems or crevices in the stem, a combination of bark removal and stem treatments should be followed. Herbicide application should follow where the species is known to coppice.



Figure 4: ring barking of tree (invasive species of South Africa, 2018)

Follow up clearing

The preferred method for follow up clearances is **hand-pulling** and **foliar spray**. Follow-up clearance should occur at different times/stages as stipulated in the plan. Large trees that are considered too big for hand-pulling, tree popping or foliar spray, can be cut down, slashed or ring barked – ring barking of larger trees is preferred in forested areas to reduce the damage caused by trying to remove the trees and in areas where they are left to increase the perching sites for raptors.

Table 5: Herbicide for each size class of alien invasive plant (Working for Water, 2018)

Species	Common name	Size class	Treatment method	Herbicide
Acacia cyclops	Red eye wattle (Rooikrans)	Seedling	Hand pull	No herbicide needed
				Clopyralid 90 + Triclopyr (as amine salt) 270 g/L SL
		Seedling	Foliar spray	Fluroxypyr 200 g/L EC
				Triclopyr (as butoxy ethyl ester) 240 g/L EC
				Triclopyr (as butoxy ethyl ester) 480 g/L EC
				Triclopyr (as triethyl ammonium) 120 g/L + Aminopyralid 12 g/L
				Triclopyr (as butoxy ethyl ester) 240 g/L + Aminopyralid 30 g/L
				Triclopyr (as amine salt) 360 g/L SL
				Cylindrobasisidum laeve
				Triclopyr (as amine salt) 360 g/L SL
Acacia mearnsii	Black Wattle	Young	Lopping / pruning	No herbicide needed
				Clopyralid 90 + Triclopyr (as amine salt) 270 g/L SL
		Seedling	Foliar spray	Fluroxypyr 200 g/L EC
				Glyphosate (as ammonium salt) 680 g/kg WG
				Glyphosate (as isopropylamine salt) 360 g/L SL
				Glyphosate (as potassium salt) 450g/L SL
				Glyphosate (as isopropylamine salt) 480 g/L SL
				Glyphosate (as sodium salt) 500g/kg WG
				Triclopyr (as butoxy ethyl ester) 240 g/L EC
				Triclopyr (as triethyl ammonium) 120 g/L + Aminopyralid 12 g/L
Young	Lopping / Pruning	Triclopyr (as butoxy ethyl ester) 480 g/L EC		
		Triclopyr (as butoxy ethyl ester) 240 g/L + Aminopyralid 30 g/L		
		Fluroxypyr 80 + Picloram 80 g/L ME		
		Glyphosate (as potassium salt) 500 SL		
		Fluroxypyr 80 + Picloram 80 g/L ME		
		Imazapyr 100 g/L SL		
		Picloram (as potassium salt) 240g/L SL		
		Triclopyr (as amine salt) 360 g/L SL		
		Triclopyr (as triethyl ammonium) 120 g/L + Aminopyralid 12 g/L		

Species	Common name	Size class	Treatment method	Herbicide
Eucalyptus species	Gum species	Adult	Bark strip Cut stump / Fill	No herbicide needed
				Fluroxypyr 80 + Picloram 80 g/L ME
				Imazapyr 100 g/L SL
				Picloram (as potassium salt) 240g/L SL
				Triclopyr (as amine salt) 360 g/L SL
				Triclopyr (as triethyl ammonium) 120 g/L + Aminopyralid 12 g/L Cylindrobasisidium laeve
		Seedling	Hand pull Foliar spray	Picloram (as potassium salt) 240g/L SL
				Triclopyr (as butoxy ethyl ester) 480 g/L EC
				No herbicide needed
				Fluroxypyr 80 + Picloram 80 g/L ME
				Imazapyr 100 g/L SL
				Metsulfuron methyl 500g/kg WP Metsulfuron methyl 600g/kg WP Picloram (as potassium salt) 240g/L SL Triclopyr (as butoxy ethyl ester) 240 g/L EC Triclopyr (as butoxy ethyl ester) 480 g/L EC Clopyralid 90 + Triclopyr (as amine salt) 270 g/L SL
Young	Lopping / Pruning	Fluroxypyr 80 + Picloram 80 g/L ME		
		Glyphosate (as ammonium salt) 680 g/kg WG		
		Glyphosate (as isopropylamine salt) 360 g/L SL		
		Glyphosate (as potassium salt) 450g/L SL		
		Glyphosate (as potassium salt) 500 SL		
		Glyphosate (as sodium salt) 500g/kg WG Imazapyr 100 g/L SL Metsulfuron methyl 500g/kg WP Metsulfuron methyl 600g/kg WP Picloram (as potassium salt) 240g/L SL Triclopyr (as butoxy ethyl ester) 240 g/L EC Triclopyr (as amine salt) 360 g/L SL Glyphosate (as isopropylamine salt) 360 g/L SL		

Species	Common name	Size class	Treatment method	Herbicide
<p><i>Solanum mauritianum</i></p>	<p>Bugweed</p>	<p>Adult</p>	<p>Cut stump / Fill</p>	<p>Clopyralid 90 + Triclopyr (as amine salt) 270 g/L SL</p>
				<p>Furoxypyr 80 + Picloram 80 g/L ME</p>
				<p>Glyphosate (as ammonium salt) 680 g/kg WG</p>
				<p>Glyphosate (as isopropylamine salt) 360 g/L SL</p>
				<p>Glyphosate (as potassium salt) 450g/L SL</p>
				<p>Glyphosate (as potassium salt) 500 SL</p>
				<p>Glyphosate (as sodium salt) 500g/kg WG</p>
				<p>Imazapyr 100 g/L SL</p>
				<p>Metsulfuron methyl 500g/kg WP</p>
				<p>Metsulfuron methyl 600g/kg WP</p>
				<p>Picloram (as potassium salt) 240g/L SL</p>
				<p>Triclopyr (as butoxy ethyl ester) 240 g/L EC</p>
				<p>Triclopyr (as amine salt) 360 g/L SL</p>
				<p>Glyphosate (as isopropylamine salt) 360 g/L SL</p>
<p>Triclopyr (as butoxy ethyl ester) 480 g/L EC</p>				
			<p>Cut Stump + diesel</p>	<p>Picloram (as potassium salt) 240g/L SL</p>
			<p>Fill</p>	<p>Triclopyr (as amine salt) 360 g/L SL</p>
		<p>Seedling 0.5 to 1m and Coppice</p>	<p>Foliar spray</p>	<p>Clopyralid / triclopyr (-amine salt) 90 / 270 g/L SL Confront 360 SL (L7314)</p> <p>Furoxypyr 200 g/L EC Starane 200 EC (L4918); Tomhawk 200 EC (L6652); Voloxypyr 200 EC (7776)</p> <p>Furoxypyr / picloram 80 / 80 g/L ME Plenum 160 ME (L7702)</p> <p>Glyphosate (ammonium) 680 g/kg WG Roundup Max 680 WG (L6790)</p> <p>Glyphosate (isopropylamine) 240 g/L SL Turnbleweed 240 SL (L4781)</p> <p>Glyphosate (isopropylamine) 360 g/L SL Glyph 360 SL (L4767); Mamba 360 SL (L4817); Roundup 360 SL (L407); Springbok 360 SL (L6719)</p> <p>Glyphosate (isopropylamine) 450 g/L SL RoundUp Turbo 450 SL (L7166)</p> <p>Glyphosate (isopropylamine) 480 g/L SL Mamba Max 480 SL (L7714)</p> <p>Glyphosate (potassium) 500 g/L SL Touchdown Forte Hitech 500 SL adjuvant incl.(L7305)</p> <p>Glyphosate (sodium) 500 g/kg WG Kilo 500 WSG (L7431)</p>

Species	Common name	Size class	Treatment method	Herbicide
Pinus species	Pine species	Mature	Cut stump/frill	Imazapyr 100 g/L SL Chopper 100 SL (L3444), Hatchet 100 SL (L7409)
				Triclopyr (butoxy ethyl ester) 240 g/L EC Ranger 240 EC adjuvant incl. (L6179)
				Glyphosate (ammonium) 680 g/kg WG Roundup Max 680 WG (L6790)
				Glyphosate (isopropylamine) 480 g/L SL Mamba Max 480 SL (L7714)
				Imazapyr 100 g/L SL Chopper 100 SL (L3444), Hatchet 100 SL (L7409)
Pinus species	Pine species	Mature	Cut stump/frill	Picloram (potassium salt) 240 g/L SL Access 240 SL (L4920), Browser 240 SL (L7357)
				Triclopyr (-amine salt) 360 g/L SL Lumberjack 360 SL (L7295), Timbrel 360 SL (L4917)
				NONE

6 Annexure B1: Fire prevention and preparedness (adapted from Invasive Species Control plan guidelines for private land by L. Stafford & Dr. M. Geartner)

Implement measures to prevent the starting of wildfires, including spreading to neighbouring land and to be ready and able to combat fires on the farm should they occur.

Should landowners fail to adhere to the provisions of the **National Veld and Forest Act, 1998 (Act 101 of 1998), (NVFA)** e.g. preparing of a fire break, notifying about their intention to conduct a burn on their land, or meeting the standards, penalties are involved (NVFA, Sec 19).

In addition, NVFA Sec 19 (5) states that any owner, occupier of person in control of land on which a fire occurs who fails to take reasonable steps to extinguish the fire, or to confine it to that land, or to prevent it from causing damage to property on adjoining land, is guilty of an offence. Bringing alien plant infestations under control is an important step towards preventing fires from spreading to neighbouring land as these fires burn up to 10 times hotter than fynbos fires. Fires in alien invested land are very difficult to control, especially under windy and very hot conditions.

Prepare and maintain a fire break around the property, ensure

- it is wide enough and long enough to have a reasonable chance of preventing a veldfire from spreading to or from neighbouring land;
- it does not cause soil erosion; and
- it is reasonably free of inflammable material capable of carrying a veldfire across it
- Join the Fire Protection Association (FPA)
- Be ready to fight fires by acquiring equipment and having available personnel to fight fires
- In an emergency certain persons and officials will be given permission to enter land and fight fires
- Notify the FPA and neighbouring landowners about fires and take the necessary steps to stop the spread of fires should they occur (for more information see section 18 of the 'The National Veld and Forest Act, 1998 (Act 101 of 1998).'

7 Annexure C1: Safety, Health and Environment (SHE) (adapted from Invasive Species Control plan guidelines for private land by L. Stafford & Dr. M. Gearner)

It is the landowner's responsibility to ensure a safe working environment and that the teams working on the property adhere to the minimum safety requirements. This can be achieved by sourcing appropriately trained and experienced teams. The principle of "leave no trace" applies.

The landowner should liaise with the contractor to ensure the following minimum SHE requirements are adhered to:

Toilet facilities

- The contractor is responsible for providing a mobile toilet on site for the duration of the work (it is not in all cases possible to provide a mobile toilet, where the field conditions are not suitable for a mobile toilet, human waste should be buried by digging a hole of at least 20 cm deep)
- Clean water must be made available in suitable containers for drinking and mixing herbicides

Team's skills requirements

- Chainsaw operators in possession of valid certificates
- Herbicide applicators certified

Work methods and equipment

- Equipment must be suitable for the work and in good working condition
- Adhere to work methods stipulated in the site specification

Vehicle and driver

- The driver must be in possession of a valid PrDP
- The vehicle must be roadworthy
- Tools must be transported in the trailer, separately from the workers

Safety precautions

- Certified SHE Rep on site
- Certified Safety Office on site
- The SHE Rep must conduct daily safety talks
- The first aid kit must be on site

COVID

- The contractor must be in possession and present proof of a valid certificate of good standing with the Compensation Commissioner

- Any incidents must be reported to the landowner
- An indemnity form must be signed stating that the contractors accepts full liability for any COID related matters and that the landowner will not be held liable should the contractor not comply with minimum standards
- The contractor deals with COID cases and not the landowner
- Near misses, incidents and accident register must be kept

Insurance

- The contractor must be appropriately insured for the vehicle and equipment
- The contractor must provide proof of third party and liability insurance
- Sign an agreement whereby the contractor accepts liability for damages in case of negligence

Storage of fuel and herbicides

- Fuel and herbicides must be left in a shady area, away from the resting/eating area
- The area must be clearly marked with bunting
- The bunting must be removed on completion of the job
- Herbicide mixing and refuelling must be conducted on a spill blanket
- A spade must be on site to cover any accidental spillage
- A serviced and functional fire extinguisher must be kept at the fuel refilling area

Preventing fires

- No smoking while working, assign a designated smoking area
- Remove cigarette butts
- No smoking during windy conditions
- Keep 1 fire beater for every team member within reach of the workers
- No chainsaw work during Code Red days - Fire Danger Indices (FDIs) obtainable from FPA

Correct PPE are being worn at all times

Table 6: PPE to be worn

Item	Supervisor	Machine operator	General workers SHE Rep; 1 st Aid Rep; Driver	Specialized herbicide applicator
Sunhat (follow up operations)	✓	✓	✓	✓
Hard hat (when chainsaws are being used)	✓	✓	✓	✓
Hard hat with visor and certified earmuffs (SABS or EU),	x	✓	x	x
T-shirt	✓	✓	✓	✓
Conti suit	✓	✓	✓	✓
FESA approved chainsaw	x	✓	x	x

Item	Supervisor	Machine operator	General workers SHE Rep; 1 st Aid Rep; Driver	Specialized herbicide applicator
pants (eleven layers) with broad belt or braces				
Whistle	✓	✓	x	x
Safety boots	✓	✓	✓	✓
Gumboots (only when working in riverine/wetland areas)	✓	✓	✓	✓
Chainsaw safety boots	x	✓	x	x
Gloves	✓	✓	✓	✓
Chainsaw operators gloves	x	✓	x	x
Safety goggles	✓	✓	✓	✓
Cape (when using a knapsack)	x	x	x	✓
Mask (when applying herbicides)	x	x	x	✓
Rubber gloves (for mixing herbicides)	x	x	x	✓
Rubber apron (for mixing herbicides)	x	x	x	✓
Rain suit (during rainy conditions)	✓	✓	✓	✓

It is recommended that the requirements are stipulated in the work specifications and the contractor accept accountability in writing.

8 References

Invasive species of South Africa. 2018. *Invasive species of South Africa*. [ONLINE] Available at: <http://www.invasives.org.za/> [Accessed 26 August 2019]

WFW. 2018. WFW Species Herbicide list v2.9. [ONLINE] Available at: <http://www.dwaf.gov.za/wfw/Control/> [Accessed 27 August 2019]

DEADP. 2018. Guidelines for monitoring, control and eradication plans as required by Section 76 of the National Environmental Management: Biodiversity Act, 2004 (Act Ao. 10 of 2004) (NEMBA) for species listed as invasive in terms of Section 70 of this Act.



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CURRICULUM VITAE (Abbreviated)

Qualifications:

- 1991 Bachelor of Science (BSc.) Botany & Zoology, Rhodes University
- 1992 Bachelor of Science Honours (BSc Hons) Botany, Rhodes University
- Various LLB courses (Unisa)

Career:

- 1992 – present Founder member of HilLand Associates and HilLand Environmental, Environmental Management Consultants
- 1993 – 1995 Part time Lecturer in Conservation Development, Saasveld Campus of the Port Elizabeth Technicon (now NMMU).

Publication:

Over 800 reports commissioned as part of Environmental Impact Assessment Processes, Public Participation, Scoping, Environmental Management and specialist botanical reports.
Popular articles on Environmental Management.

Fields of Expertise:

27 years' experience in Vegetation Surveys, Vegetation Sensitivity Mapping, Biodiversity Assessments, Specialist Botanical Assessments, Environmental Impact Assessments, Environmental Impact Reports, Environmental Planning and Management, Rehabilitation, Environmental Management Plans & Frameworks, Strategic Conservation Planning with Multi Spectrum Participation, Environmental compliance monitoring and auditing, Public participation and facilitation.

Projects:

Leading and participating in over 900 projects in terms of ECA and NEMA on a variety of Development Projects within Southern Africa.
Various Research Projects focusing on environmental management, planning and rehabilitation.

Conferences & Associations:

- Participant in various National Conferences.
- Member of the International Association of Impact Assessors South Africa (IAIASa).
- Founder chairperson of the Southern Cape branch of IAIASa.
- Botanical Society of South Africa.
- South African Association of Botanists.

Celebrating 27 years of environmental consulting

HilLand Environmental Consultants cc - Trading as HilLand Environmental

ANNEXURE M:

Visual Impact Assessment

Proposed Kleinkrantz Sand Quarry
Remainder of Portion 3 of Farm 191, George Municipality
Western Cape Province

Visual Assessment

November 2019



Prepared by
Quinton Lawson, Architect
Bernard Oberholzer, Landscape Architect

Prepared for
Klipberg Consulting (Pty) Ltd

NEMA requirements for Specialist Reports		
	Specialist Report content as required by the NEMA 2014 EIA Regulations, as amended	Section
1 (1)(a)	(i) the specialist who prepared the report; and	Page 3
	(ii) the expertise of that specialist to compile a specialist report including a curriculum vitae;	
(b)	a declaration that the specialist is independent in a form as may be specified by the competent authority;	Page 3
(c)	an indication of the scope of, and the purpose for which, the report was prepared;	Section 1
(cA)	an indication of the quality and age of the base data used for the specialist report;	Sections 6 and 7
(cB)	a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 11 and 12
(d)	the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;	Section 7
(e)	a description of the methodology adopted in preparing the report or carrying out the specialised process, inclusive of equipment and modelling used;	Section 3
(f)	details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Sections 10 and 11
(g)	an identification of any areas to be avoided, including buffers;	Section 13
(h)	a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Maps 7
(i)	a description of any assumptions made and any uncertainties or gaps in knowledge;	Section 5
(j)	a description of the findings and potential implications of such findings on the impact of the proposed activity, or activities;	Section 14
(k)	any mitigation measures for inclusion in the EMPr;	Sections 13
(l)	any conditions for inclusion in the environmental authorisation;	Sections 14
(m)	any monitoring requirements for inclusion in the EMPr or environmental authorisation;	n/a
(n)	a reasoned opinion-	
	(i) whether the proposed activity or portions thereof should be authorised; and	Section 14
	(iA) regarding the acceptability of the proposed activity or activities; and	Section 14
	(ii) if the opinion is that the proposed activity or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;	Section 13
(o)	a description of any consultation process that was undertaken during the course of preparing the specialist report;	Refer to EAP
(p)	a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	Refer to EAP
(q)	any other information requested by the competent authority.	N/A
2	Where a government notice gazetted by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	N/A

1 Visual Specialists

The Visual Impact Assessment was prepared by the following:

Quinton Lawson, Architect.
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Email: quinton@openmail.co.za

Bernard Oberholzer, Landscape Architect
PO Box 471, Stanford, Western Cape, 7210
Email: bernard.bola@gmail.com

Expertise

Quinton Lawson has a Bachelor of Architecture Degree (Natal) and has more than 12 years experience in visual assessments, specialising in 3D modelling and visual simulations. He has previously lectured on visual simulation techniques in the Master of Landscape Architecture Programme at UCT.

Bernard Oberholzer has a Bachelor of Architecture (UCT) and Master of Landscape Architecture (U. of Pennsylvania), and has more than 20 years experience in visual assessments. He has presented papers on Visual and Aesthetic Assessment Techniques, and is the author of Guideline for Involving Visual and Aesthetic Specialists in EIA Processes, prepared for the Dept. of Environmental Affairs and Development Planning, Provincial Government of the Western Cape.

Declaration

The authors declare that they are independent practitioners with expertise and wide experience in visual impact assessments, that the review has been carried out in an objective manner and complies with the relevant EIA regulations, and that all material information in their possession, which may influence a decision by the competent authority and the objectivity of the review, has been disclosed.

Quinton Lawson, Architect
SACAP Reg. no. 3686

Bernard Oberholzer, Landscape Architect
SACLAP Reg. no. 87018

2 Purpose and Scope of the Study

In the Response to the Notification of Intent to Develop (NID), Heritage Western Cape has indicated that a Heritage Impact Assessment (HIA) must be submitted, with special reference to visual impacts of the proposed development. This report covers the visual assessment, which will in turn be incorporated into the HIA prepared by Asha Consulting.

The 'Guideline for Involving Visual and Aesthetic Specialists' (Oberholzer, 2005), issued by the Provincial Government of the Western Cape, was used as a guide.

3 Methodology

The method used for the visual assessment includes the following:

- A site visit and mapping of the study area location and its landscape context;
- Mapping of the projected viewsheds and distance radii of the proposed sand mine to determine the possible zone of visual influence;
- Identification of important viewpoints and view corridors, and a photographic survey from selected viewpoints, taking into account potential sensitive receptors;
- Description of the receiving environment and the proposed project, together with possible visual impacts or risks associated with the project; and
- Formulation of practical mitigation measures to minimise potential adverse visual impacts.

The term 'visual' is taken in its broadest meaning to include visual, scenic, aesthetic and amenity values represented by the natural and cultural landscape, which encompasses the area's 'sense of place'.

4 Policy and Legislative Context

The National Environmental Management Act (NEMA) and the Regulations in terms of Chapter 5 of NEMA. (Act No. 107 of 1998) and NEMA EIA Regulations (2014) apply as the proposed sand mining is a listed activity.

The National Heritage Resources Act (NHRA) (Act No. 25 of 1999), and associated provincial regulations, provide legislative protection for natural, cultural and scenic resources, as well as for archaeological and paleontological sites within the study area. This report deals with visual and scenic considerations, while heritage issues are covered in the HIA.

5 Assumptions and Uncertainties

It was assumed that the sand mining would be carried out over an area of about 6 hectares, depending on the final configuration of the buffers. The planned duration of the quarry is 15 to 20 years, depending on the demand for building sand.

The post-mining activity would be the rehabilitation of the entire site with natural vegetation and the removal of any building structures, (Klipberg Consulting 2019, Scoping Report).

It was assumed that no lighting would be required at night, except for security lighting at the site office. Standard mine operating hours would be weekdays 06:30 to 17:00, Saturdays 07:00 to 13:00 and closed on Sundays. The sand quarry would also be closed for the builders' holiday every year from mid-December to mid-January, (Klipberg Consulting email 30.08.2019).

6 Description of the Project

Information on the project has been obtained from the Scoping Report by Klipberg Consulting (2019).

A surface sand quarry is proposed, where sand would be transported from the site by trucks involving some potential noise and dust. Site rehabilitation will take place concurrently with the mining of the sand.

The proposed mining and associated activities include the following:

- Establishment of site infrastructure including an access road, site office and weighbridge.
- Progressive removal of alien vegetation from the site as sand mining progresses.
- Overburden clearing and stockpiling of topsoil using a bulldozer or frontend loader.
- Removal of any additional overburden and storage in separate stockpiles.
- Excavating sand and putting it through a mobile screening plant to remove oversize material (e.g. clay) or roots and branches.
- Loading of sand into trucks.
- Recording the mass of sand loaded onto customer trucks using a weighbridge and the processing of invoices.
- Profiling and sloping of embankment slopes using overburden and oversize material recovered from the screening plant.
- Replacing topsoil, stabilising the soil and revegetation of the final embankment slopes.
- Sloping, shaping and revegetation of the final floor.
- Clearance of the remaining alien trees from the 60 m buffer zone adjacent to the N2 National Road and rehabilitation back to natural vegetation.

7 Site Investigation

A visit to the proposed sand quarry project site and surroundings was carried out on 21 August 2019. Weather conditions were clear and bright for the photographic survey. The season was not a consideration for carrying out a visual assessment.

Viewpoints were selected based on occupied properties within a 5 km radius of the proposed mine, and on road users of the N2 Garden Route. The selected viewpoints are indicated on Map 5.

8 Description of the Study Area

The location, context and relevant landscape features of the receiving environment are indicated in Maps 1, 2 and 3, and the general character of the study area is illustrated by means of photomontages and viewpoint panoramas in Figures 1 to 3.

Local Context:

The site, which is undeveloped, is located in a semi-rural area on the N2 National Road, between Wilderness and Sedgefield, in the George Municipality. The small settlement of Kleinkrantz is about 1,6 km to the west. Access to the quarry is via a gravel road off the N2. Immediate surrounding uses include mainly smallholdings with residential use and guest cottages, as well as a number of other sand quarries. The Garden Route National Park forms the northern boundary of the site. The land use zoning for the site is Agriculture Zone 1.

Landscape Features:

The sand deposits are part of the Bredasdorp Group formed from old aeolian dune sands, the site being on a south-facing slope of the fossilised dune, about 1,3 km inland from the coast. The undulating landform reaches about 100m above sea level in the vicinity of the site, with drainage features generally being absent because of the porous nature of the dune sands. There are no

topographic or scenic features of significance on the site, although the ridgeline on the northern edge provides a useful visual buffer to the Garden Route National Park.

Vegetation and Land Use:

Although the site is classified as Southern Cape Dune Fynbos vegetation type, only a few pockets of thicket and fynbos occur along the northern edge of the property, the remaining area consisting of mature stands of alien pine and black wattle, which are invasive tree species, usually used for firewood.

Visual Sensitivity:

Besides the National Park on the northern boundary, which has national protection status, there are a number of sensitive receptors in the adjacent area.

The Farrey residence to the east, about 30m away from the site boundary, is the nearest neighbour. The residence is on high ground overlooking the National Park, and would potentially be affected by visual, dust and noise disturbance caused by the quarrying activities. There would however be a proposed 60m buffer along that section of the site boundary, (see Map 4).

The N2 National Road on the southern boundary of the site forms part of the scenic 'Garden Route'. The proposed buffer of 60m along the boundary of the road, as well as existing trees would limit visibility of the proposed sand quarrying, but disturbance could be caused by dust and noise from trucks entering and leaving the site.

The Ubuntu Garden Route Retreat and Conference Centre, about 175m from the proposed sand quarry, includes self-catering accommodation, which faces north in the direction of the proposed quarry. Visibility is reduced by foreground pine trees on the Ubuntu property, but noise and dust from the quarrying operations could cause a disturbance.

The Ichibi Wilderness Wedding and Function Venue is some 212m from the proposed quarry, and includes guest accommodation, which face north over the lakes and National Park. Noise from the proposed sand quarrying operation could cause disturbance, but visibility is mitigated by foreground trees.

The Timberlake Organic Village, some 458m to the east of the proposed sand mine, includes small retail outlets and restaurants. Being nearly 0,5km from the mine, visibility would be screened by topography and foreground trees. There are 2 existing sand mines that are nearer to Timberlake Village than the site of the proposed sand quarry.

The adjacent site to the west, Remainder of Portion 2/191, has previously been mined for sand and subsequently rehabilitated. There are apparently proposals for a house to be constructed on the site.

Many of the above receptors have tourism significance, which needs to be taken into account in terms of the economy of the region and social impacts, reported on elsewhere in the EIA.

9 Alternatives

A number of alternative sites and layouts are discussed at length in the Scoping Report, and only the preferred alternative, along with the no-go alternative are assessed in this visual report.

10 Visual Issues

Issues raised during the public participation are covered in the Scoping Report, and those issues with visual implications are summarised below:

- Visual and access: How would the visual 'screen' change over 20 years with the eradication of aliens as well as the visual impact on an existing house very close to the common boundary and other adjacent properties? A full visual impact study should be undertaken. (Boven Lange Valley Nature Estate).

- Aspect and visual affect: the property is predominantly facing south/south-west towards the N2 (effectively “The Garden Route” and will have a negative visual and economic impact on tourism in the area. (Paradise Ridge Conservancy).
- The HIA must have specific reference to the visual impacts of the proposed development. (Heritage Western Cape).
- SANParks recommends at least a 50m buffer from the SANParks boundary and no transformation on the western side of the existing road. Screening from the N2 should be with natural vegetation only. (SANParks).

11 Potential Visual Impacts

The visual assessment is based on a number of quantitative and qualitative criteria to determine potential visual impacts, as well as their relative significance, as listed below:

Visibility

Visibility is determined by distance between the proposed sand quarry and surrounding receptors. Distance radii are indicated on Maps 3 and 5 to give an indication of the degree of visibility of the proposed sand quarry. The nature of the topography and the screening effect of trees would need to be taken into consideration. Estimated visibility relating to the scale of the sand quarry are given below:

High visibility:	Prominent feature within the observer's viewframe 0-200m
Mod-high visibility:	Relatively prominent within observer's viewframe 200-400m
Moderate visibility:	Seen as part of the wider landscape 400m-600m
Marginal visibility:	Seen as a minor element in the landscape 600m +

Potential visibility of the proposed sand mine from selected viewpoints is given in Table 1 below, and in the photographic images, (see Figures 1 to 4).

Table 1: Viewpoints and Potential Visibility

View point	Location	Coordinates		Distance to sand mine	Visibility
		latitude	longitude		(before mitigation)
vp1	Ichibi Wilderness Function Venue	33.993940 S	22.675516 E	212m	not visible beyond foreground trees
vp2	Site Boundary to Farrey Residence	33.995332 S	22.679524 E	9m	highly visible after tree removal
vp3	Timberlake Organic Village	34.000311 S	22.683937 E	458m	not visible beyond foreground trees and existing mining area
vp4	N2 opposite Eastern Boundary	33.999618 S	22.679085 E	37m	partly screened by trees in 60m setback buffer - highly visible after tree removal
vp5	Ubuntu Garden Route Retreat	34.000814 S	22.678660 E	175m	moderately visible beyond foreground trees
vp6	N2 opposite Western Boundary	33.998555 S	22.676533 E	37m	partly screened by trees in 60m setback buffer - highly visible after tree removal

Visual Exposure

Visual exposure is determined by the viewshed indicated on Map 6, being the geographic area within which the sand quarry would be visible. Because of topography, most of the surrounding area within the viewshed would be in a view shadow. Added to this, foreground buildings and vegetation would further reduce visual exposure of the proposed sand quarry from that which is shown on Map 6.

Visual Absorption Capacity

This is the potential of the landscape to screen the proposed sand quarry from view. The proposed quarry would lie above the N2, separated by a 60m setback from the road with mature trees. Visual absorption capacity is therefore fairly good, helping to screen the proposed sand quarry. The ridge on the northern portion of the site would screen the proposed quarry from the Garden Route National Park.

Visual Sensitivity

Visual sensitivity is usually determined by topographic, scenic or cultural features, including scenic routes, the main route in this case being the N2 National Road, which forms part of the Garden Route. In addition, there are a number of sensitive receptors, including those with tourism significance, in the immediate area.

Landscape Integrity

Visual quality tends to rely on the scenic or semi-rural quality and intactness of the landscape, as well as an absence of visual intrusions. Currently the scenic attributes of the area have been partly altered by other sand quarries in the area. The proposed sand quarrying activities could affect the rural quality and general 'sense of place' of the area, but this would be mitigated in the medium and long term by rehabilitation during, and at the end of the sand mining period.

Potential visual impacts are listed in Table 2 below, and the intensity of the potential visual impacts is assessed against accepted visual criteria in Table 3. Finally, the overall significance of visual impacts is assessed in Table 4.

Table 2: Potential Visual Impacts

Source	Pathway	Receptor
Visual disturbance created by sand mining, along with noise and wind-blown sand and dust.	Potential visual intrusion of the sand mining activities on the rural landscape.	Residents of surrounding smallholdings and tourism businesses.
Dust and noise created by machinery and trucks transporting sand.	Potential disturbance caused by heavy trucks using local roads.	Residents and local road users of the N2 route.
Potential benefits of removal of alien vegetation and rehabilitation of the entire quarry area.	Reclamation and landscaping of the site.	Residents and road users surrounding the site.

Table 3: Intensity of Potential Visual Impacts / Benefits

Criteria	Comments	Sand quarry alternative	No-go alternative
Visibility of activities	Mining activities would be partly visible to the surroundings in the medium term. Users of the N2 and adjacent landowners, including tourism facilities, could be affected.	Medium-high during operation. Low after rehabilitation	Low
Visual exposure View catchment area	The viewshed is fairly localised with much of the area in a view shadow, and partly screened by trees.	Low-medium	Low
Visual absorption capacity (VAC) Screening potential	Partly screened by topography, trees and existing buildings.	Low to medium if alien trees removed	Low to medium if alien trees removed
Visual sensitivity	Effect on sensitive receptors in the immediate area, including tourism facilities and users of N2	Medium-high	Low
Landscape integrity/ character of the area	The landscape has been previously altered by sand mines in the area but still has rural character.	Medium	Low
Overall intensity	Indication of severity or magnitude.	Medium	Low

Table 4: Visual Impact Significance of Sand Mining

Criteria	Rating
Nature of impact	Negative and direct.
Extent of impact	Local, only within viewshed.
Intensity (consequence) of impact:	Medium. (See Table 3 above)
Duration of impact:	Medium term, during operational period.
Probability of occurrence:	Definite, based on experience elsewhere.
Confidence:	Certain, based on photomontages in Figs. 1 to 4.
Degree to which impact can be reversed:	Reversible after the operational period, with rehabilitation.
Degree to which impact may cause irreplaceable loss of resources:	Nothing of major significance. Site can be rehabilitated. Benefit of removal of alien vegetation.
Significance rating of impact <u>before</u> mitigation, (neutral, very low, low, medium or high)	Medium, (medium intensity with local extent and medium duration).
Significance rating of impact <u>after</u> mitigation, (neutral, very low, low, medium or high)	Medium to low, assuming implementation of buffers and mitigation measures.

12 Cumulative Visual Impacts

Although the proposed sand quarry would have a fairly localised visual influence, the fact that there are two other quarries nearby means that the cumulative effect of all the quarries together would impact on the rural character of the area, as well as its 'sense of place'. This in turn could potentially affect the tourism potential and property values of the area.

Another visual concern is that the proposed quarry tends to create a leap-frog effect, with sand quarries occurring in a random pattern. This leads to fragmentation of the landscape and visual disruption of a semi-rural small-holding environment.

The siting of sand mines should ideally be guided by the Municipal Spatial Development Plan (MSDF), to minimise conflicts with existing land uses. If this were the case, sand mining could be focused in one area with a single large buffer, (instead of several smaller buffers), and could benefit from a comprehensive rehabilitation strategy, leading to more meaningful post-mining uses.

Taking the above into account, the cumulative visual impact significance is considered to be **medium-high** before mitigation, **medium** after mitigation with buffers, as currently proposed, and **low** after rehabilitation.

13 Proposed Mitigation Measures:

The following essential mitigation measures are recommended:

- The buffer on the northern boundary with the National Park should be 60m, as currently indicated, the purpose being to retain the visual integrity of the existing ridgeline, which separates the proposed mining activity from the National Park.
- The buffer (boundary pillar) on the eastern boundary to be 60m in the northern section, as currently proposed, reducing to 9m in the southern section as indicated on Map 5.
- The mature trees that screen the property should be retained during the mining operation, and phased out as part of the successive rehabilitation of the site. Only local species should be used in the rehabilitation work.
- The life of the sand mine should be as short as possible, (obviously relating to demand for sand), to enable the early rehabilitation of the site, thereby minimising long term visual impact on the rural character and sensitive receptors of the area.

Additional general mitigations include the following:

- Mining activities to be during normal working hours to avoid the impact of lights, noise and truck traffic at night on local residents;
- Measures to be implemented to minimise dust, wind-blown sand and litter as prescribed in the EMPr;
- Rehabilitation of the site after the operational phase as contained in the EMPr.
- Only essential direction signage to be provided at the entrance to the site on the N2, and no billboards to be permitted.

14 Conclusion

No major features of visual or scenic significance on the site will be lost during the operation of the sand quarry, provided that the buffers from the N2 in the south and on the site boundaries are observed. (Map 5).

The visual influence of the proposed sand quarry would be fairly localised in terms of the viewshed, with a number of receptors being in a view shadow, from where the quarry would not be visible. Dust and noise would however be a concern, as well as the general effect on the sense of place, particularly for tourism in the area.

The potential visual impact significance would be **medium** before mitigation and **medium-low** after mitigation, given the the limited, local scale of the sand mine, the medium duration of the activity, and the potential for visual screening.

The cumulative visual impact significance could, however, be **medium-high** before mitigation, because of the sporadic distribution of sand mines in the area. The cumulative visual impact could, however, reduce to **medium** with the implementation of the visual buffers, and **low** after rehabilitation.

A possible benefit of the sand mine is the opportunity to remove invasive alien trees, and to improve the biodiversity of the site with local plant species.

Provided the visual mitigations are implemented, along with the mitigations recommended in other specialist studies, the sand mine, as proposed, would not constitute a fatal flaw in visual terms, and could be approved.

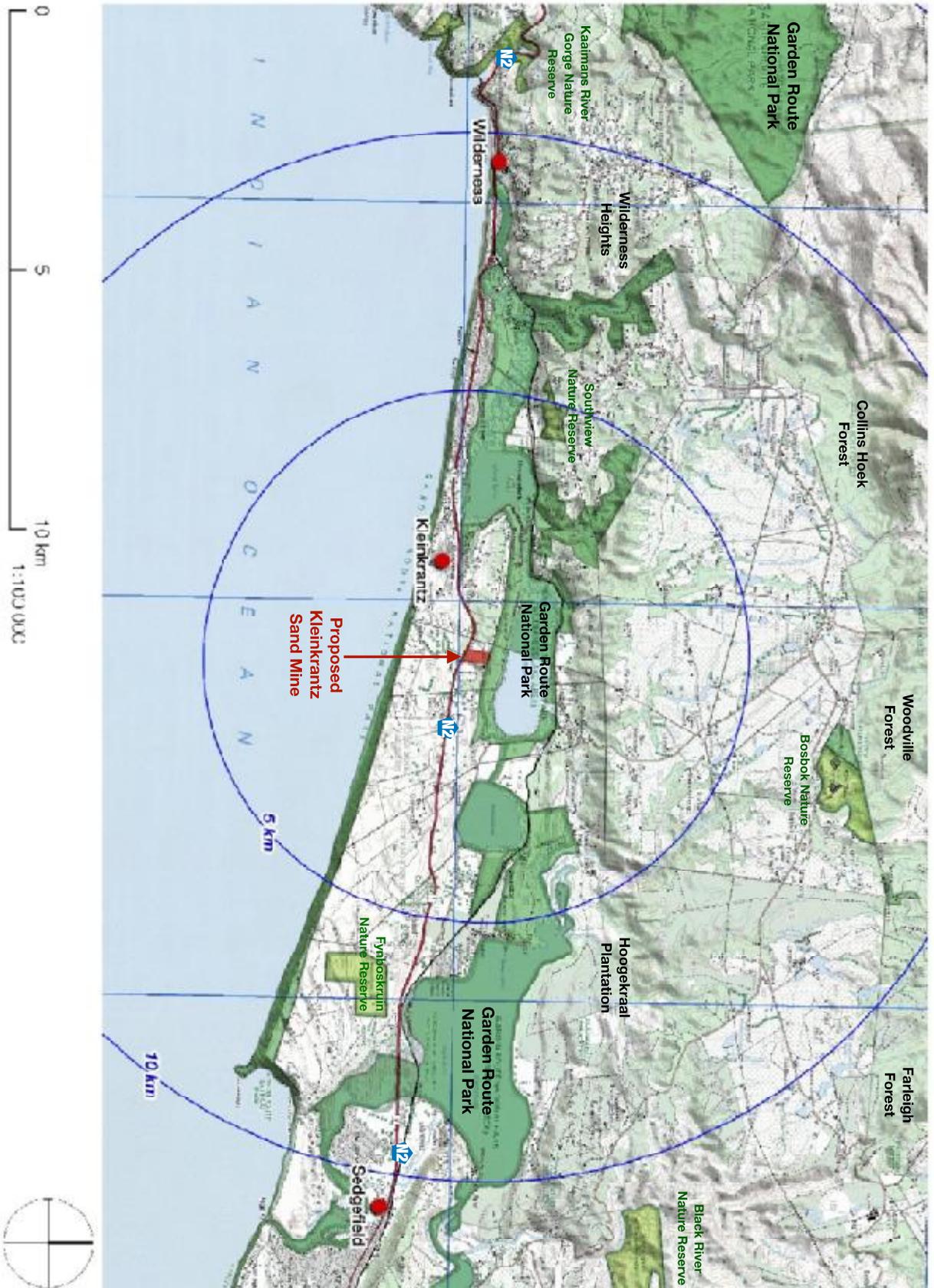
15 References

Asha Consulting , 2019. Notification of Intent to Develop (NID): Proposed Kleinkrantz sand quarry, Portion 3 of Farm 191, George Municipality, including supporting with maps and aerial photographs.

Heritage Western Cape (HWC), June, 2019. Response to Notification of Intent to Develop (NID): Proposed Kleinkrantz sand quarry, Portion 3 of Farm 191, George Municipality, Western Cape.

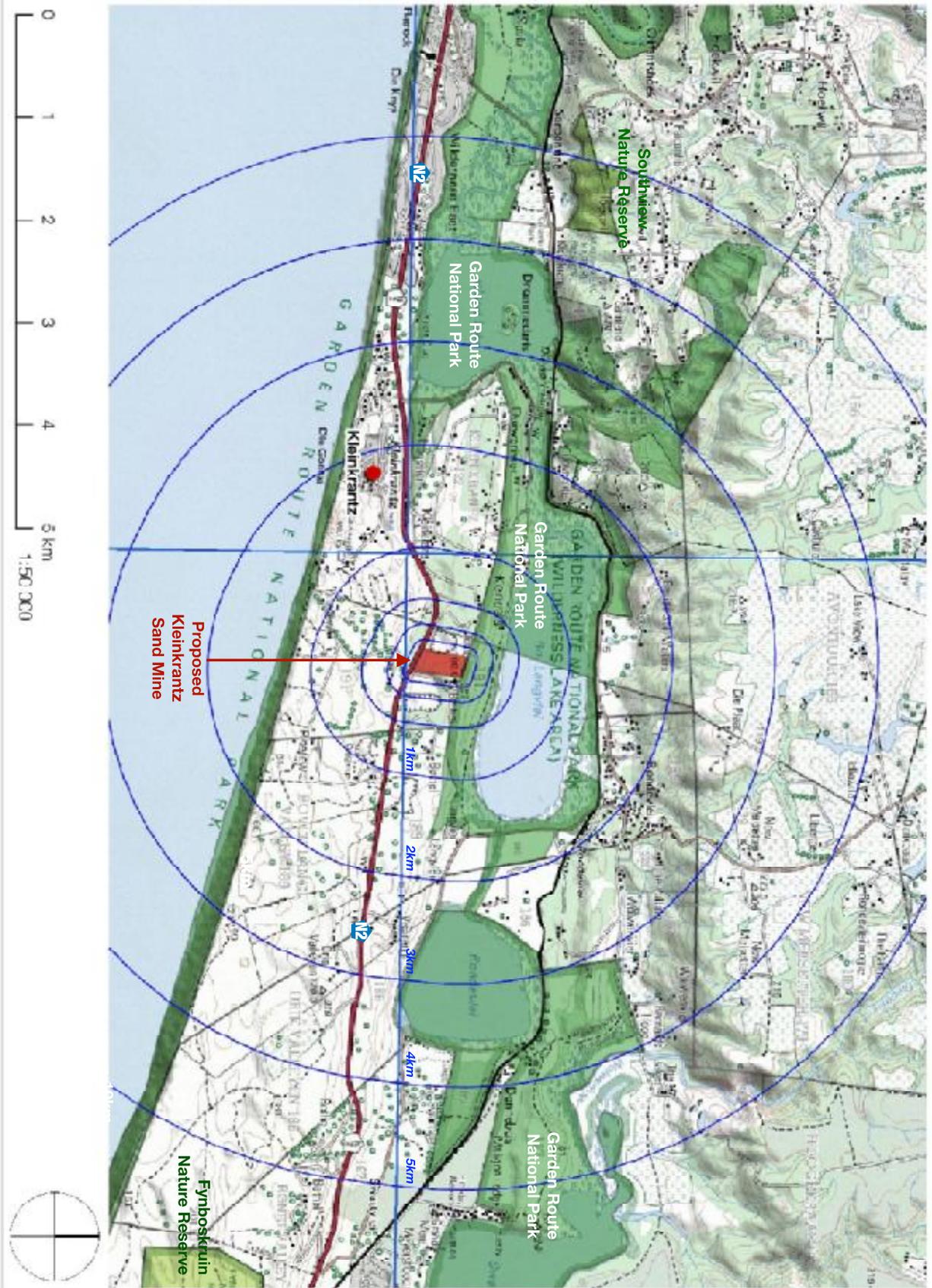
Klipberg Consulting, July 2019. Scoping Report: For Listed Activities Associated with a mining right Application, Kleinkrantz Sand Quarry, Rem. of Portion 3 of Farm 191.

Oberholzer, B. 2005. Guideline for involving visual and aesthetic specialists in EIA processes: Edition 1: CSIR Report no. ENV-S-C 2005 053 F. Provincial Government of the Western Cape.



map 1 • regional locality

base map : NCI 1 : 50 000 Topographic Series : 3322DC_3422BA_Wilderness, 3422BB_Sedgelyield



map 2 • local context

base map : NCI 1:50 000 Topographic Series : 3322DC_3422BA_Wilderness, 3422BB Sedgemoor

Legend :

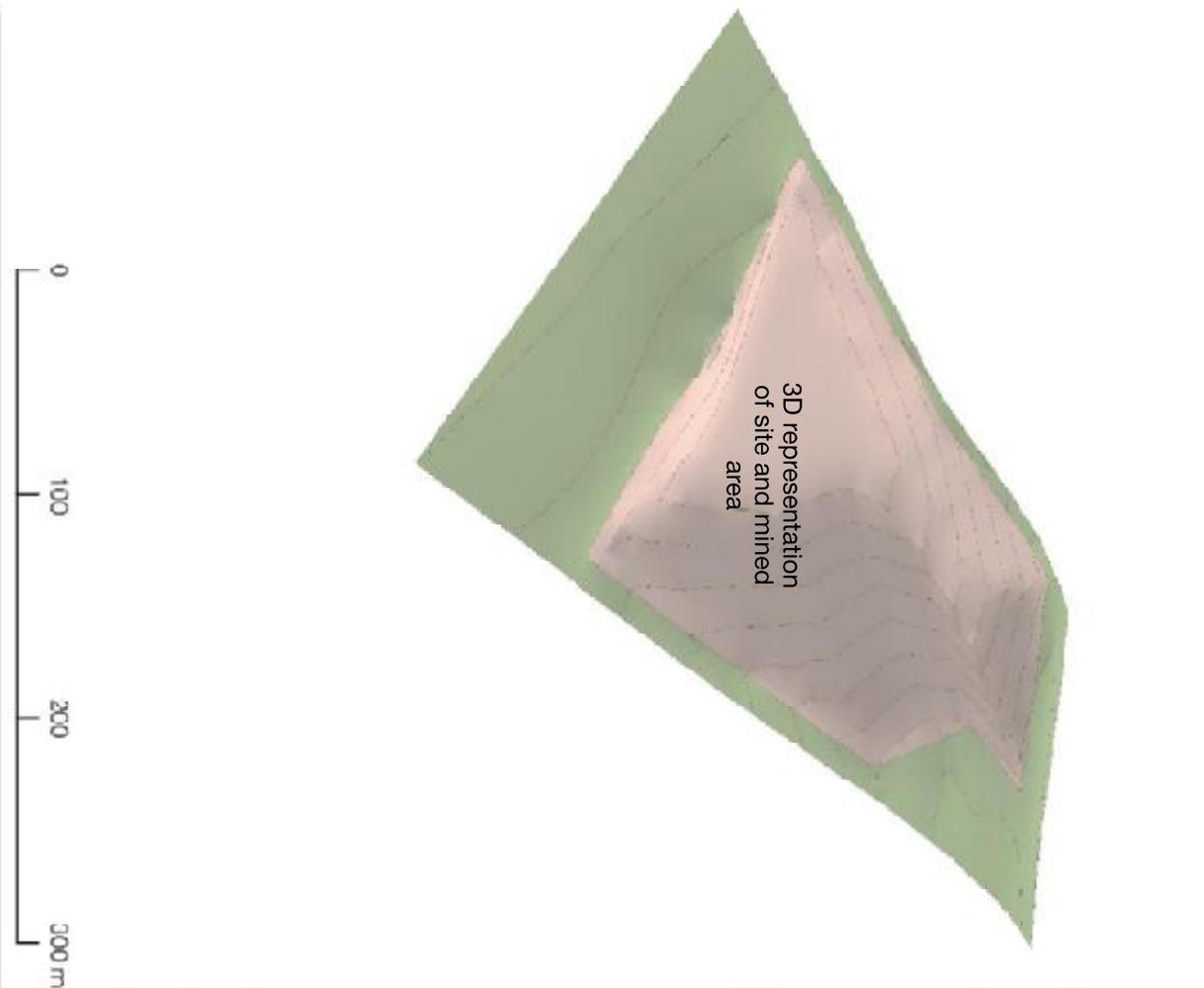
 Existing/previous sand mining, disturbed areas

 distance radii



map 3 • site context

base map : Google Earth 2019



map 4 • proposed mining layout

base map : Google Earth 2019 : 3D model garc 2019 : Mining Layout : P/VK Management Services

Legend :

 Field Track Route

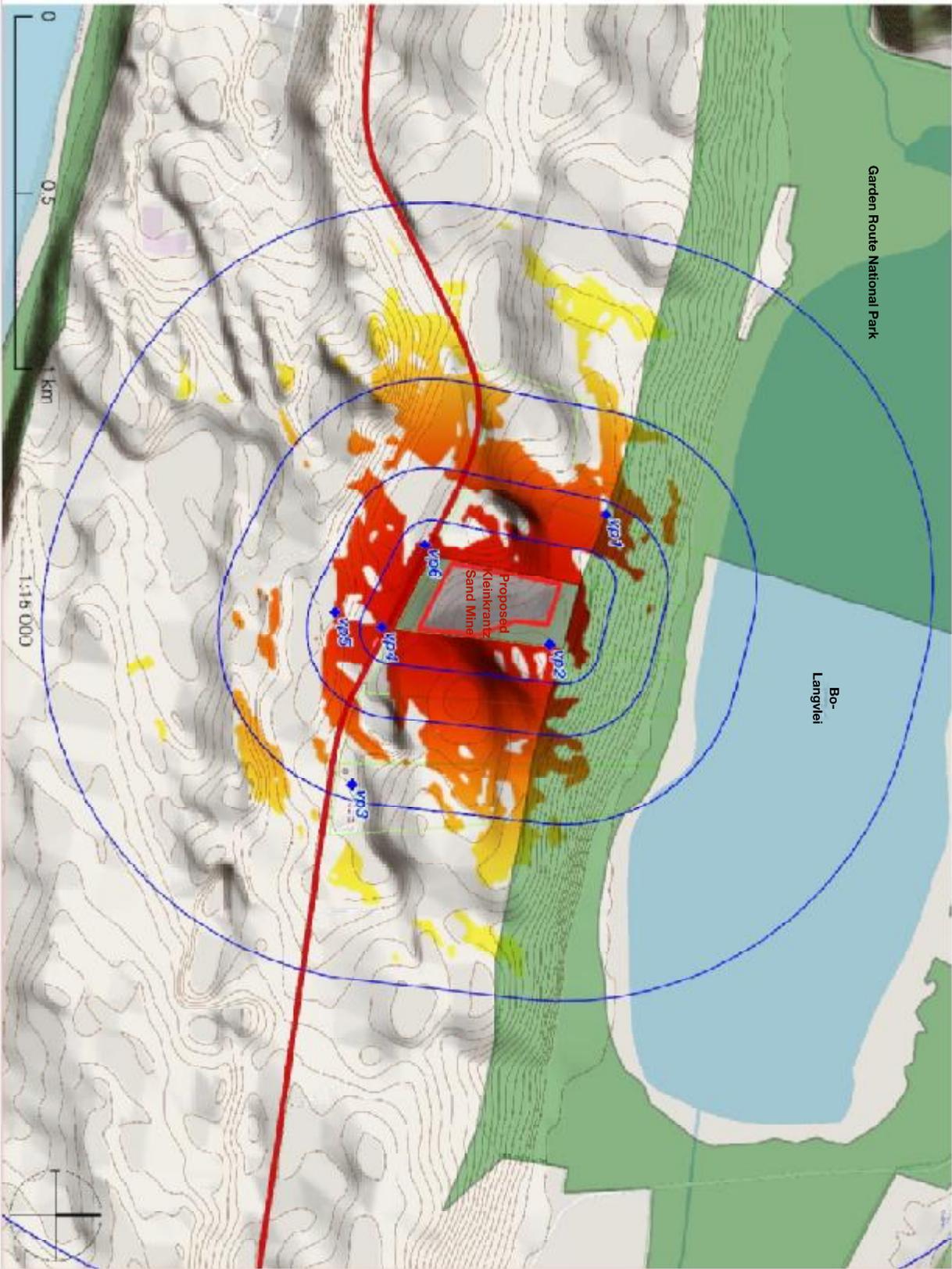
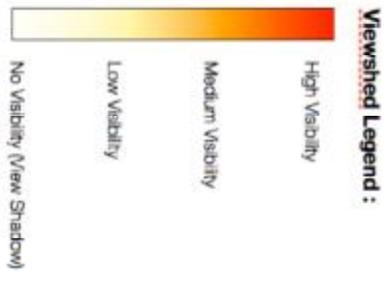
 Fieldwork Viewpoints

 Indicative viewpoint View cones



map 5 • fieldwork and viewpoints

base map : Google Earth 2019



map 6 • mining area viewshed

base map : Open Street Maps 2019



Ichibi Wilderness Resort / Wedding and Conference Venue



Timberlake Organic Village



**Ubuntu Garden
Route Retreat**



figure 1 • visual receptors



Viewpoint 1 • looking East from **Ichibi** Wilderness Resort

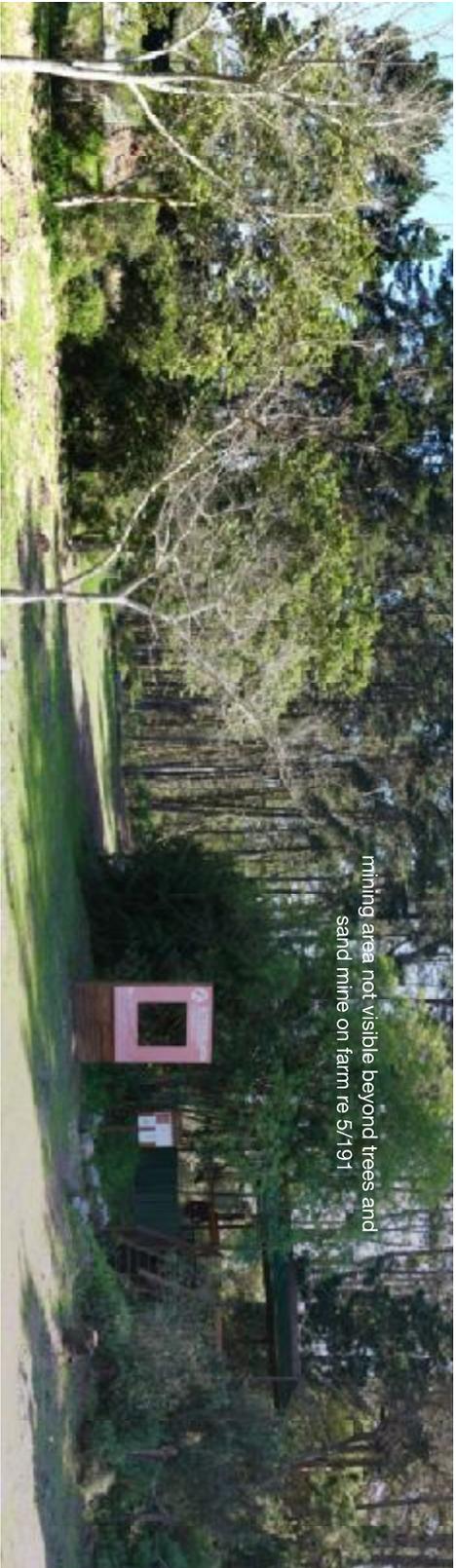
distance 212m



Viewpoint 2 • looking West from **Farrey** Private Residence

distance 54m

figure 2 • photomontages



Viewpoint 3 • looking North-West from **Timberlake Organic Village**

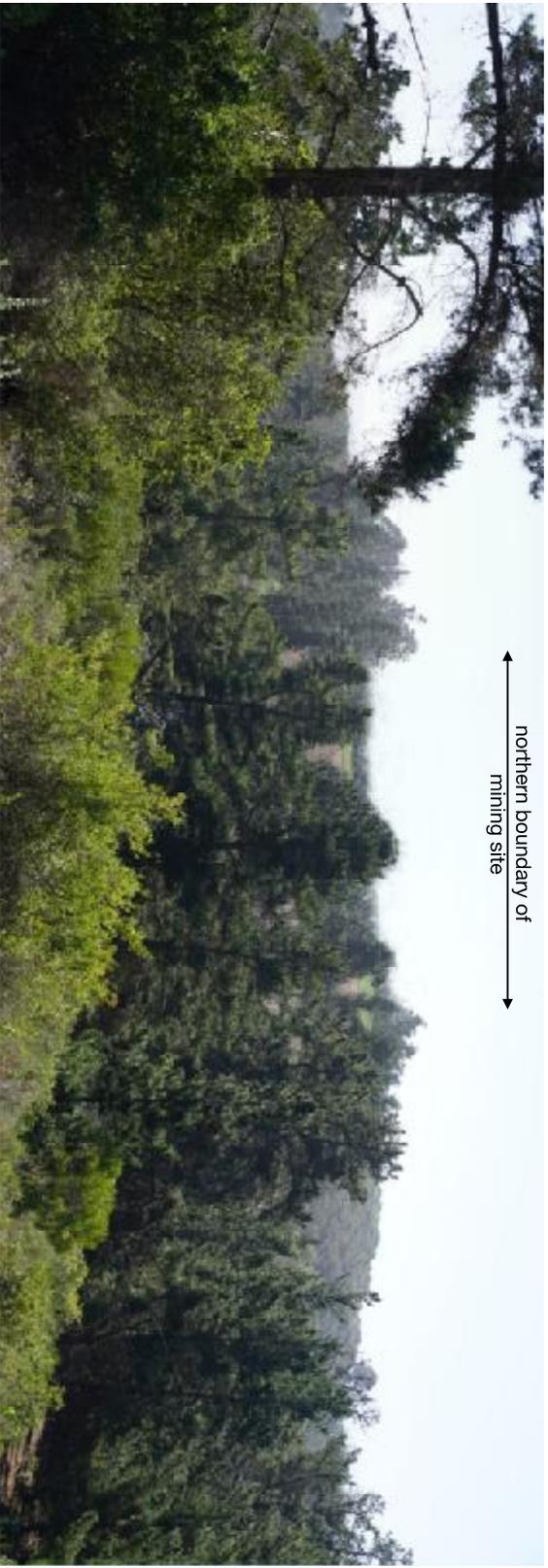
distance 458m



Viewpoint 4 • looking North from the **N2** at Eastern Boundary of site

distance 37m

figure 3 • photomontages



Viewpoint 5 • looking North from **Ubuntu** Garden Route Retreat

distance 175m



Viewpoint 6 • looking North from the **N2** at Western Boundary of site

distance 37m

figure 4 • photomontages

ANNEXURE N:

Heritage Impact Assessment

HERITAGE IMPACT ASSESSMENT: PROPOSED KLEINKRANTZ SAND QUARRY, GEORGE MAGISTERIAL DISTRICT, WESTERN CAPE

Required under Section 38(8) of the National Heritage Resources Act (No. 25 of 1999).

HWC Case No.: 19051606SB0521E

Report for:

Klipberg Consulting (Pty) Ltd

P.O. Box 46, Darling,

Tel: 082 782 3727

Email: sdavey@mweb.co.za

On behalf of:

PVVK Management Services CC



Dr Jayson Orton

ASHA Consulting (Pty) Ltd

40 Brassie Street, Lakeside, 7945

Tel: (021) 788 1025 | 083 272 3225

Email: jayson@asha-consulting.co.za

Draft for comment: 14 November 2019

EXECUTIVE SUMMARY

1. Site Name

Proposed Kleinkrantz Sand Quarry

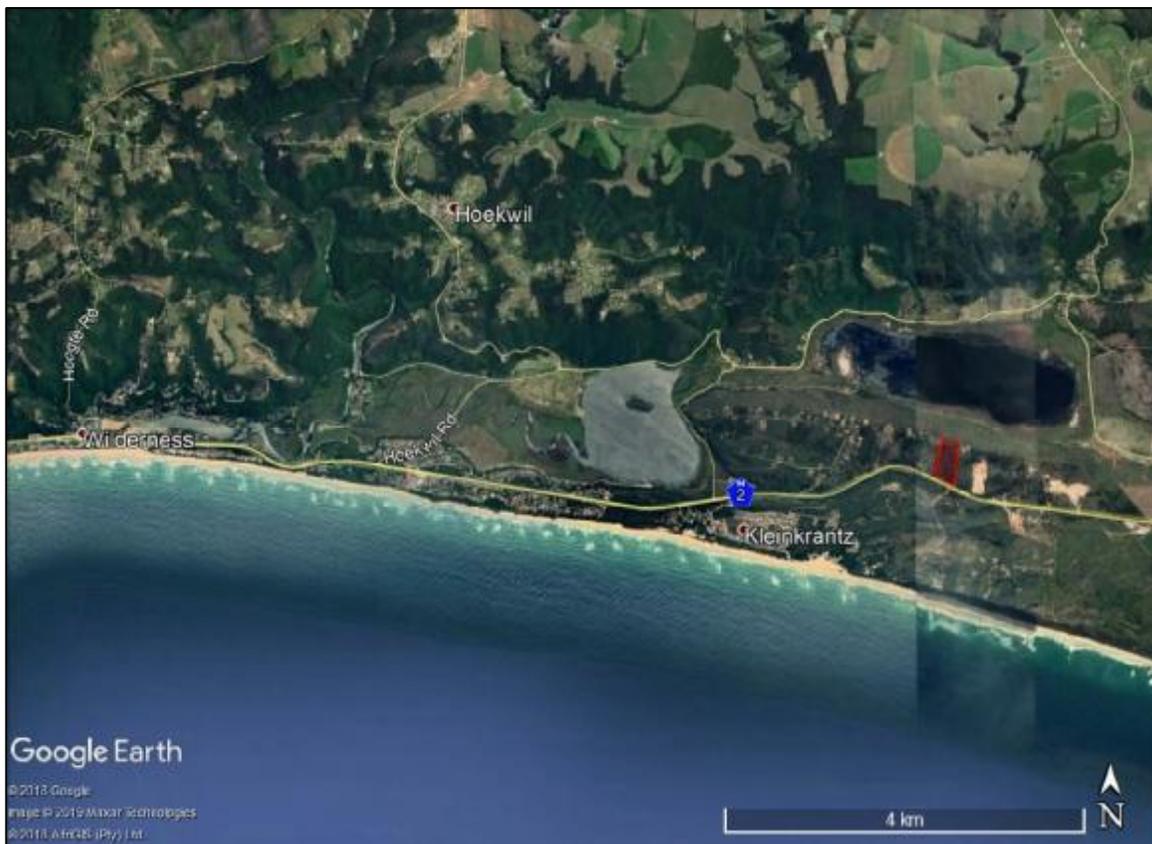
2. Location

Off N2, east of Wilderness.

Portion 3 of Farm 191, George Registration Division

Centre pint of site: S33° 59' 49" E22° 40' 42"

3. Locality Plan



The site is indicated by the red polygon to the east of Kleinkrantz and Wilderness.

4. Description of Proposed Development

A simple sand quarry is proposed with no underground mining or sophisticated technology required. Mining and rehabilitation will take place concurrently. The proposed mining and associated activities are summarised as follows:

- Establishment of site infrastructure including the access road, site office (two containers) and a weighbridge. One container will be a store and the other will be an office / control room. Solar power and a chemical toilet will be used (i.e. no services will be installed).

- The establishment of a visual berm within the southern edge of the mining area to reduce the visual impact from the N2 National Road¹.
- Search and rescue of indigenous plants and protected trees from each mining area before sand mining starts.
- Progressive removal of alien vegetation from the site as sand mining progresses.
- Overburden clearing and stockpiling of topsoil using a bulldozer or front end loader.
- Removal of any additional overburden and storage in separate stockpiles.
- Excavating sand and putting it through a mobile screening plant to remove oversize material (e.g. clay) or roots and branches (Figure 5).
- Loading of sand into trucks.
- Recording the mass of sand loaded onto customer trucks using a weighbridge and the processing of invoices.
- Profiling of slopes and the mining floor using overburden and oversize material recovered from the screening plant.
- Replacing topsoil, stabilising the soil and revegetation of the mined areas.
- Concurrent mining and rehabilitation is planned with no more than one mining phase being open at a time.
- Clearance of all remaining alien trees in the buffer areas.
- When mining has been completed, the site office, weighbridge and earth moving equipment will be removed.

The size of the property is 9.05 hectares, however the proposed extent of the mining activities is 5.3697 hectares.

The estimated duration of the proposed mining activities is approximately 20 years. Figure 6 shows a cross section through the quarry as it will be on cessation of mining.

5. Heritage Resources Identified

While there would be a very small chance of fossils, archaeological material or unmarked graves being present, the main sensitive heritage resources identified are the N2 (Garden Route) as a scenic route to the south, the Garden Route National Park (GRNP) to the north and the wider cultural landscape including the large Pleistocene dune ridge on which the site is located.

6. Anticipated Impacts on Heritage Resources

Fossils, archaeological material or unmarked graves might experience direct impacts during mining but the chances of impacts occurring are negligible. The N2, GRNP and wider cultural landscape might all experience visual impacts through degradation of their scenic and rural contexts. Mitigation measures have been proposed and included in the project design (which was amended from the original layout) in order to reduce visual impacts. The quarry is not expected to be visible at all from the GRNP to the north, while it would only be glimpsed from the N2 to the south. The VIA shows that the extent of visual impacts will be very limited due to both topography and local screening (i.e. foreground vegetation and structures).

¹ Note that originally it had been planned to use the existing alien vegetation as a screen but DMR has asked that all aliens be cleared from this area. This clearing will be phased to allow time for the berm to be vegetated.

7. Recommendations

It is recommended that the project be allowed to proceed with the western access point being preferred over the eastern one. The following conditions should be incorporated into the environmental authorisation:

- A fossil chance finds procedure must be included in the EMPr;
- It must be ensured that the berm is not revealed by alien vegetation clearing until such time as it has been vegetated;
- To avoid drawing attention, the entrance gate should be left as it is currently;
- If a sign is required then it should be as small and unobtrusive as possible; and
- If any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

8. Author/s and Date

Heritage Impact Assessment: Jayson Orton, ASHA Consulting (Pty) Ltd, 14 November 2019

Visual Impact Assessment: Quinton Lawson and Bernie Oberholzer, November 2019.

Glossary

Early Stone Age: Period of the Stone Age extending approximately between 2 million and 200 000 years ago.

Holocene: The geological period spanning the last approximately 10-12 000 years.

Hominid: a group consisting of all modern and extinct great apes (i.e. gorillas, chimpanzees, orangutans and humans) and their ancestors.

Later Stone Age: Period of the Stone Age extending over the last approximately 20 000 years.

Middle Stone Age: Period of the Stone Age extending approximately between 200 000 and 20 000 years ago.

Pleistocene: The geological period beginning approximately 2.5 million years ago and preceding the Holocene.

Abbreviations

APHP: Association of Professional Heritage Practitioners

ASAPA: Association of Southern African Professional Archaeologists

CRM: Cultural Resources Management

DMR: Department of Mineral Resources

ECO: Environmental Control Officer

EIA: Environmental Impact Assessment

ESA: Early Stone Age

GPS: global positioning system

GRNP: Garden Route National Park

HIA: Heritage Impact Assessment

HWC: Heritage Western Cape

LSA: Later Stone Age

MSA: Middle Stone Age

NCW: Not Conservation Worthy

NEMA: National Environmental Management Act (No. 107 of 1998)

NHRA: National Heritage Resources Act (No. 25) of 1999

NID: Notification of Intent to Develop

PPP: Public Participation Process

SAHRA: South African Heritage Resources Agency

SAHRIS: South African Heritage Resources Information System

VIA: Visual Impact Assessment

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1. INTRODUCTION

ASHA Consulting (Pty) Ltd was appointed by PVVK Management Services CC to conduct an assessment of the potential impacts to heritage resources that might occur through the proposed development of a sand quarry on the remainder of Portion 3 of Farm 191, George (Figures 1 to 3). The site lies between the N2 and the Garden Route National Park (GRNP) some 1.8 km east of the village of Kleinkrantz and 9.5 km west of Sedgelyield (S33° 59' 49" E22° 40' 42").

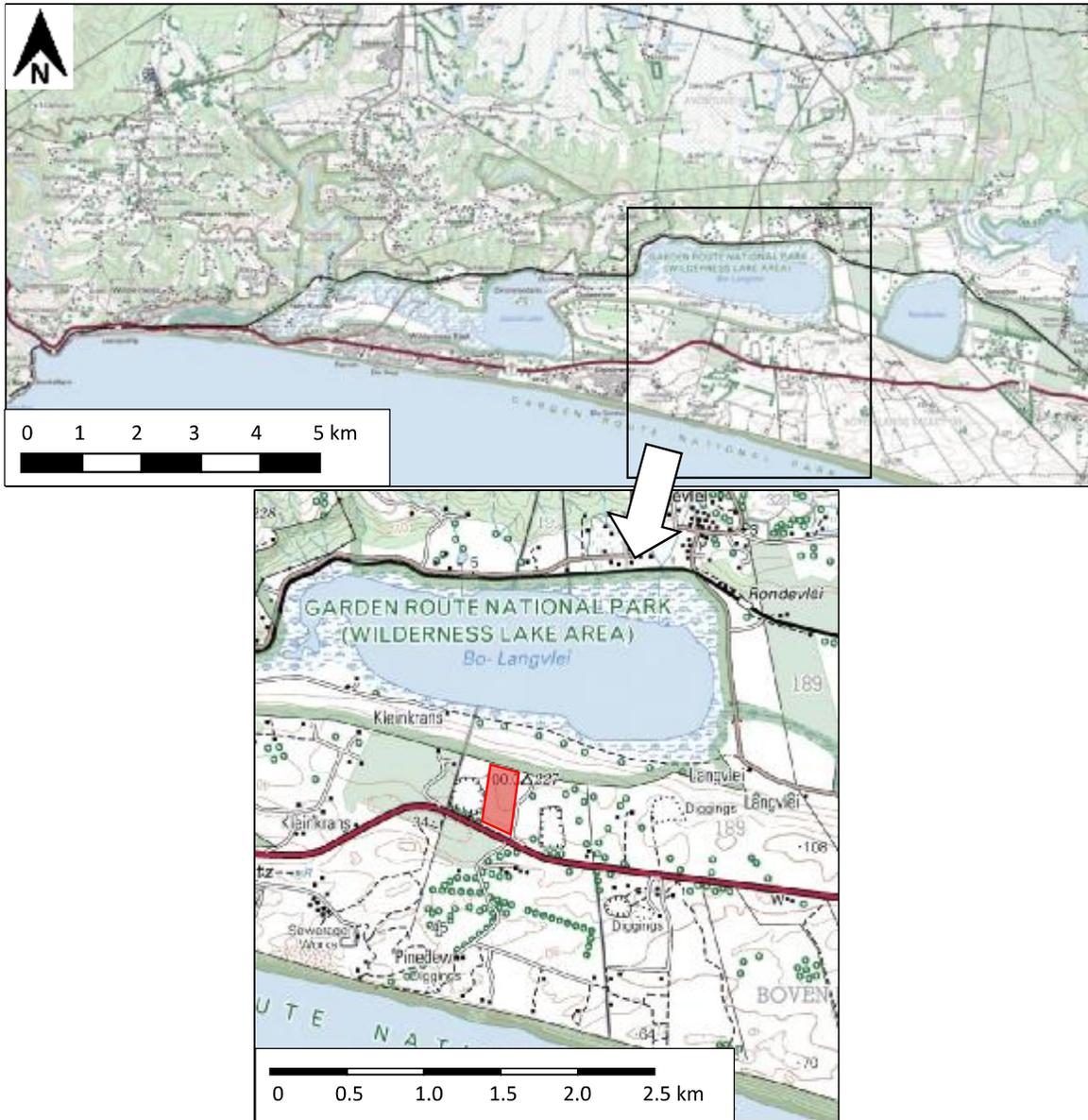


Figure 1: Extract from 1:50 000 topographic map 3322DC & 3422BA showing the location of the site (red shaded polygon). Source of basemap: Chief Directorate: National Geo-Spatial Information. Website: www.ngi.gov.za.

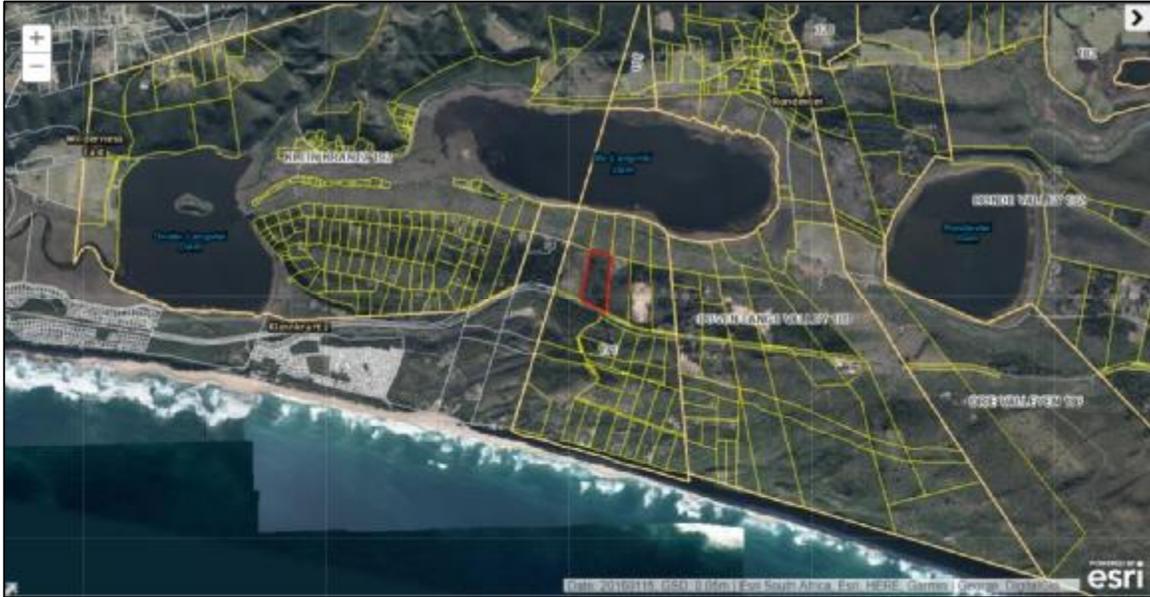


Figure 2: Aerial view of the wider study area showing farm portions and erven in yellow in white polygons respectively. The study area is the red polygon.



Figure 3: Aerial view of the immediate context of the study area showing farm portions in yellow polygons and the study area in the red polygon. The green star shows a closed and rehabilitated sand mine and the yellow stars show existing and active sand mines.

1.1. Project description

The Langvlei Dunes area contains suitable resources of building sand and it is an established sand mining area. An existing turning lane on the N2 National Road provides access to the proposed

Kleinkrantz Sand Quarry and an on-site sand track will be upgraded and used as an internal access road.

There will be a 60 m wide buffer zone between the sand quarry and the N2 National Road to the south as well as a 60 m wide buffer between the quarry and the GRNP to the north. The western and eastern boundaries of the site will have 9 m wide buffers (Figure 4).

A simple sand quarry is proposed with no underground mining or sophisticated technology required. Mining and rehabilitation will take place concurrently. The proposed mining and associated activities are summarised as follows:

- Establishment of site infrastructure including the access road, site office (two containers) and a weighbridge. One container will be a store and the other will be an office / control room. Solar power and a chemical toilet will be used (i.e. no services will be installed).
- The establishment of a visual berm within the southern edge of the mining area to reduce the visual impact from the N2 National Road².
- Search and rescue of indigenous plants and protected trees from each mining area before sand mining starts.
- Progressive removal of alien vegetation from the site as sand mining progresses.
- Overburden clearing and stockpiling of topsoil using a bulldozer or front end loader.
- Removal of any additional overburden and storage in separate stockpiles.
- Excavating sand and putting it through a mobile screening plant to remove oversize material (e.g. clay) or roots and branches (Figure 5).
- Loading of sand into trucks.
- Recording the mass of sand loaded onto customer trucks using a weighbridge and the processing of invoices.
- Profiling of slopes and the mining floor using overburden and oversize material recovered from the screening plant.
- Replacing topsoil, stabilising the soil and revegetation of the mined areas.
- Concurrent mining and rehabilitation is planned with no more than one mining phase being open at a time.
- Clearance of all remaining alien trees in the buffer areas.
- When mining has been completed, the site office, weighbridge and earth moving equipment will be removed.

The size of the property is 9.05 hectares, however the proposed extent of the mining activities is 5.3697 hectares.

The estimated duration of the proposed mining activities is approximately 20 years. Figure 6 shows a cross section through the quarry as it will be on cessation of mining.

² Note that originally it had been planned to use the existing alien vegetation as a screen but DMR has asked that all aliens be cleared from this area. This clearing will be phased to allow time for the berm to be vegetated.

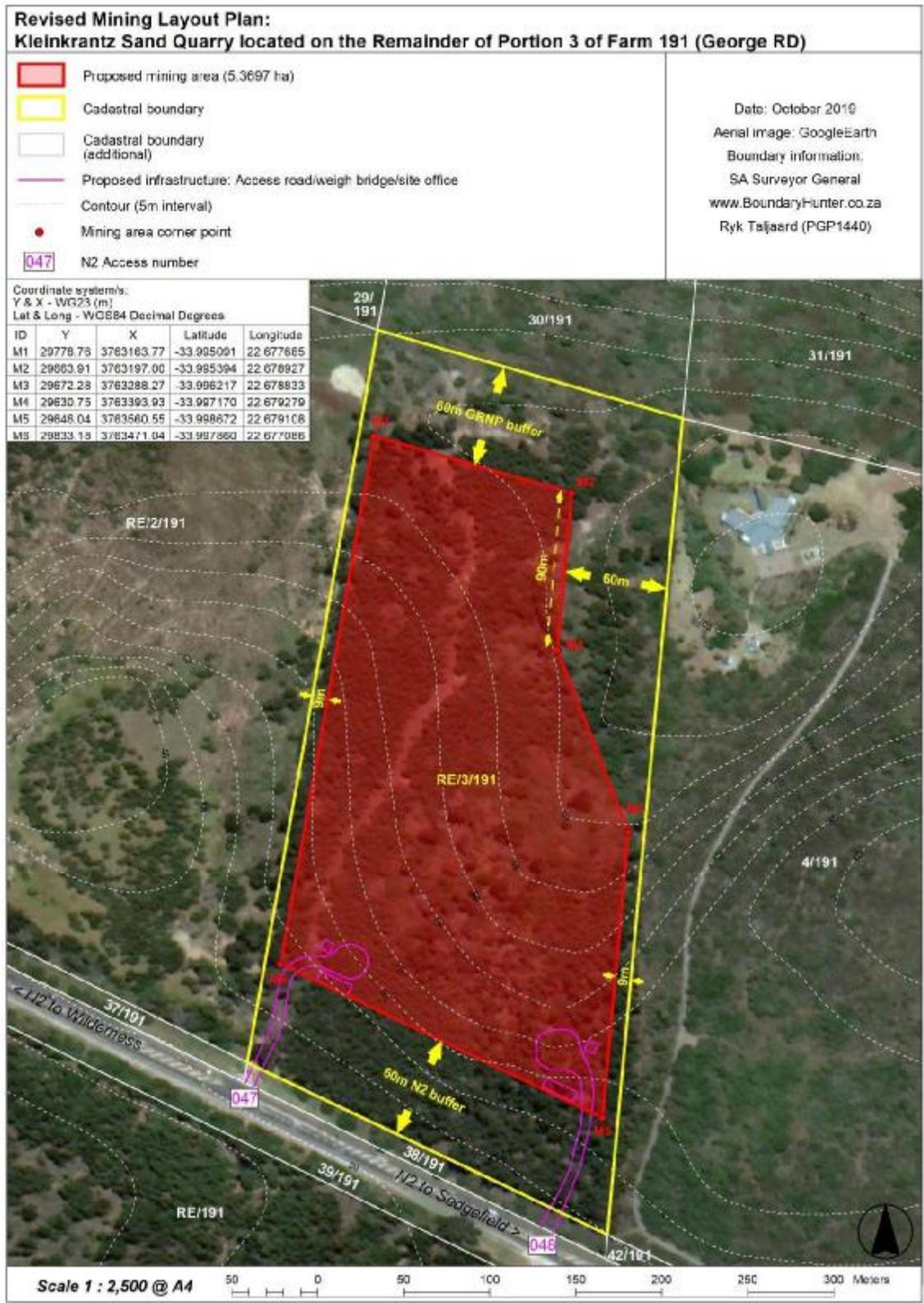


Figure 4: Aerial view of the study area showing the property boundary (yellow polygon) and proposed mining area (red shaded polygon). Source: Davey (2019: fig. 3).



Figure 5: Photograph showing the type of equipment (mobile screening plant and front end loader) to be used in mining.

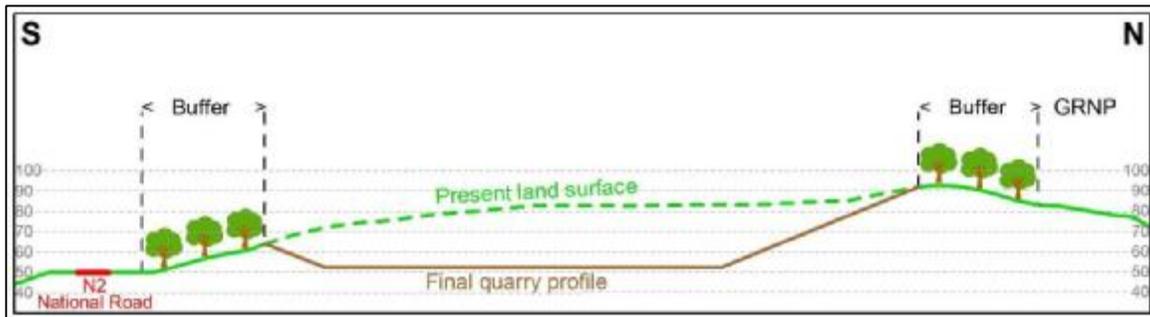


Figure 6: South to north cross section through the mining area showing the envisage final appearance of the site.

1.1.1. Consideration of alternatives

Site alternatives

The Langvlei Dunes have long been mined for building sand. Due to a growing need for building sand along the south coast, three new sites were investigated by the applicant in the Scoping Report for the proposed sand mine (Figure 7). Alternatives 1 and 2 were both found to be unsuitable for the following reasons:

- Both were partly covered by Critical Biodiversity Areas; and
- Both were more visible from the N2 National Road due to their more limited vegetation cover.

Site Alternative 3 (the Remainder of Portion 3 of Farm 121) lacks Critical Biodiversity Areas and has a dense coverage of alien trees (mainly pine and black wattle). Furthermore, sand mining has already occurred on three properties to the north of the N2 and, from a heritage point of view, it can be argued that it is better to keep this land use consolidated on the north side of the N2. A negative aspect of the preferred site is that it borders the Garden Route National Park to the north but, overall, this site is preferred from both the environmental and heritage points of view. Only Site Alternative 3 is thus taken forward into the Environmental Impact Assessment (EIA) Phase and consequently assessed in the present HIA. It is henceforth referred to as the 'study area'.

Layout alternatives

There are no alternative layouts. Figure 8 shows the original layout with a proposed mining area of 6.58 ha. During the course of the specialist investigations for the project it was suggested that the northern buffer between the mine and the GRNP be increased to 60 m in order to ensure that mining does not occur on the skyline as viewed from the north, and that an additional buffer be introduced in the north-eastern corner of the site to protect some fynbos and to buffer the neighbouring modern house. The final layout devised as a result of these changes is shown in Figure 4. Although not an alternative, this previous layout (Figure 8) is presented to show that revisions have been made in order to arrive at an acceptable layout.



Figure 7: Aerial view of the study area and immediate surroundings showing the three alternatives considered during the Scoping Phase of the EIA. Alternatives 1 and 2 were screened out and Alternative 3 is the preferred site.



Figure 8: Original layout with a larger mining area.

Access alternative

Two access alternatives – from the south-western and south-eastern corners of the site respectively – have been proposed.

1.1.2. Aspects of the project relevant to the heritage study

All aspects of the proposed development are relevant since excavations (for mining) may impact on archaeological and/or palaeontological remains, while all above-ground aspects (equipment, infrastructure and the sand mining) create potential visual (contextual) impacts to the cultural landscape, scenic route and any significant heritage sites that might be visually sensitive.

1.2. Terms of reference

ASHA Consulting was asked to compile a Heritage Impact Assessment (HIA) in fulfilment of the requirements of Heritage Western Cape (HWC).

A Notification of Intent to Develop (NID) was submitted to HWC on 21 May 2019. HWC responded on 7 June 2019 with the following request:

NOTIFICATION OF INTENT TO DEVELOP: PROPOSED KLEINKRANTZ SAND QUARRY, FARM 191 PORTION 3, SUBMITTED IN TERMS OF SECTION 38(B) OF THE NATIONAL HERITAGE RESOURCES ACT (ACT 25 OF 1999)

CASE NUMBER: 19051406580521E

The matter above has reference.

Heritage Western Cape is in receipt of your application for the above matter received on 21 May 2019. This matter was discussed at the Heritage Officers' meeting held on 3 June 2019.

You are hereby notified that, since there is reason to believe that the proposed Kleinkrantz Sand Quarry will impact on heritage resources, HWC requires that a Heritage Impact Assessment (HIA) that satisfies the provisions of section 38(3) of the NHRA be submitted. This HIA must have specific reference to the following:

- Visual impacts of the proposed development.

The required HIA must have an integrated set of recommendations.

Please note, should you require the HIA to be submitted as a Phased HIA, a written request must be submitted to HWC prior to submission. HWC reserves the right to determine whether a phased HIA is acceptable on a case by case basis.

The comments of relevant registered conservation bodies; all interested and affected parties; and the relevant Municipality must be requested and included in the HIA where provided. Proof of these requests must be supplied.

It should also be noted, however, that following S.38(3) of the National Heritage Resources Act (No. 25 of 1999), even though certain specialist studies may be specifically requested, all relevant heritage resources should be identified and assessed.

1.3. Scope and purpose of the report

An HIA is a means of identifying any significant heritage resources before development begins so that these can be managed in such a way as to allow the development to proceed (if appropriate) without undue impacts to the fragile heritage of South Africa. This HIA report aims to fulfil the requirements of the heritage authorities such that a comment can be issued by them for consideration by the Department of Mineral Resources (DMR) who will review the Environmental Impact Assessment (EIA) and grant or refuse authorisation. The HIA report will outline any management and/or mitigation requirements that will need to be complied with from a heritage point of view and that should be included in the conditions of authorisation should this be granted.

1.4. The author

Dr Jayson Orton has an MA (UCT, 2004) and a D.Phil (Oxford, UK, 2013), both in archaeology, and has been conducting Heritage Impact Assessments and archaeological specialist studies in South Africa (primarily in the Western Cape and Northern Cape provinces) since 2004 (please see curriculum vitae included as Appendix 1). He has also conducted research on aspects of the Later Stone Age in these provinces and published widely on the topic. He is an accredited heritage practitioner with the Association of Professional Heritage Practitioners (APHP; Member #43) and also holds archaeological accreditation with the Association of Southern African Professional Archaeologists (ASAPA) CRM section (Member #233) as follows:

- Principal Investigator: Stone Age, Shell Middens & Grave Relocation; and
- Field Director: Colonial Period & Rock Art.

1.5. Declaration of independence

ASHA Consulting (Pty) Ltd and its consultants have no financial or other interest in the proposed development and will derive no benefits other than fair remuneration for consulting services provided.

2. HERITAGE LEGISLATION

The National Heritage Resources Act (NHRA) No. 25 of 1999 protects a variety of heritage resources as follows:

- Section 34: structures older than 60 years;
- Section 35: prehistoric and historical material (including ruins) more than 100 years old as well as military remains more than 75 years old, palaeontological material and meteorites;
- Section 36: graves and human remains older than 60 years and located outside of a formal cemetery administered by a local authority; and
- Section 37: public monuments and memorials.

Following Section 2, the definitions applicable to the above protections are as follows:

- Structures: “any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith”;
- Palaeontological material: “any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace”;
- Archaeological material: a) “material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures”; b) “rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation”; c) “wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation”; and d) “features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found”;
- Grave: “means a place of interment and includes the contents, headstone or other marker of such a place and any other structure on or associated with such place”; and
- Public monuments and memorials: “all monuments and memorials a) “erected on land belonging to any branch of central, provincial or local government, or on land belonging to any organisation funded by or established in terms of the legislation of such a branch of government”; or b) “which were paid for by public subscription, government funds, or a public-spirited or military organisation, and are on land belonging to any private individual.”

Section 3(3) describes the types of cultural significance that a place or object might have in order to be considered part of the national estate. These are as follows:

- a) its importance in the community, or pattern of South Africa's history;
- b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- d) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- h) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
- i) sites of significance relating to the history of slavery in South Africa.

While landscapes with cultural significance do not have a dedicated Section in the NHRA, they are protected under the definition of the National Estate (Section 3). Section 3(2)(c) and (d) list "historical settlements and townscapes" and "landscapes and natural features of cultural significance" as part of the National Estate. Furthermore, some of the points in Section 3(3) speak directly to cultural landscapes.

Section 38(8) of the NHRA states that if an impact assessment is required under any legislation other than the NHRA then it must include a heritage component that satisfies the requirements of S.38(3). Furthermore, the comments of the relevant heritage authority must be sought and considered by the consenting authority prior to the issuing of a decision. Under the National Environmental Management Act (No. 107 of 1998; NEMA), as amended, the project is subject to an EIA. The present report provides the heritage component. HWC is required to provide comment on the proposed project in order to facilitate final decision making by the DMR.

3. METHODS

3.1. Literature survey and information sources

A survey of available literature was carried out to assess the general heritage context into which the development would be set. This literature included published material, unpublished commercial reports and online material, including reports sourced from the South African Heritage Resources Information System (SAHRIS). The 1:50 000 map and historical aerial images were sourced from the Chief Directorate: National Geo-Spatial Information, while CapeFarmMapper (<http://gis.elsenburg.com/apps/cfm/#>) was also used for current aerial imagery and cadastral details.

3.2. Field survey

No field survey was undertaken. The reasons for this were as follows:

- No archaeological specialist study was requested by HWC;

- A previous survey by the author for one of the neighbouring sand mines revealed nothing on the surface (Orton & Smuts 2007); and
- It is already known that the site has a thick blanket of leaf litter owing to the dense alien bush present which means that visibility would be non-existent.

The environmental practitioner and visual assessment practitioners have both visited the site and provided photographs.

3.3. Specialist studies

A Visual Impact Assessment (VIA) was carried out by Bernard Oberholzer and Quinton Lawson. It has been incorporated into this HIA with the full report included as Appendix 3. Although no palaeontological specialist study was conducted (or required), an opinion was sought (at NID stage) from palaeontologist John Pether.

3.4. Grading

S.7(1) of the NHRA provides for the grading of heritage resources into those of National (Grade I), Provincial (Grade II) and Local (Grade III) significance. Grading is intended to allow for the identification of the appropriate level of management for any given heritage resource. Grade I and II resources are intended to be managed by the national and provincial heritage resources authorities respectively, while Grade III resources would be managed by the relevant local planning authority. These bodies are responsible for grading, but anyone may make recommendations for grading.

It is intended under S.7(2) that the various provincial authorities formulate a system for the further detailed grading of heritage resources of local significance but this is generally yet to happen. Heritage Western Cape (2016), however, uses a system in which resources of local significance are divided into Grade IIIA, IIIB and IIIC. These approximately equate to high, medium and low local significance, while sites of very low or no significance (and generally not requiring mitigation or other interventions) are referred to as Not Conservation Worthy (NCW).

3.5. Impact assessment

The impact assessment follows the methodology used by Klipberg Consulting as presented in the Scoping report (Davey 2019).

3.6. Consultation

The draft HIA was submitted to relevant interested and affected parties as required by HWC in their response to the NID application (Section 10). The report was also included in the main public participation process (PPP) required under NEMA as part of the EIA.

3.7. Assumptions and limitations

The lack of a field study is a limitation, but, given the reasons provided in Section 3.2 above, this will not have affected the outcome of the HIA. It is assumed that surface traces of heritage would not have been visible on the site.

4. PHYSICAL ENVIRONMENTAL CONTEXT

4.1. Site context

The site lies alongside the N2 National Road in an area of large subdivisions (farm portions). The Garden Route National Park (Wilderness Lake Area) abuts the site to the north. A suburban area known as Kleinkrantz lies some 1.8 km to the southwest, while an area of small holdings is located to its south, across the N2. Further west is the town of Wilderness. To the east Sedgfield lies 9.5 km away, but a little closer are two smaller estates – Trails End Private Estate and Pine Lake Marina – located 5.3 km and 5.9 km east of the study area respectively.

The site lies outside of the urban edge and the area has been used for sand mining in the past; two mines remain active, while a third (immediately west of the study area) has been closed and rehabilitated. The property to the east has a large house on it (visible on Figure 4) that was built between 2005 and 2012 (as determined through analysis of Google Earth aerial imagery).

The site is on the crest of a high, wide palaeodune ridge that separates the Bo-Langvlei (the lake to the north of the present study area) from the Indian Ocean (Figure 9).



Figure 9: Google Earth simulation showing the location of the site (darker red shaded area on elevation profile) to be on the high-lying inner edge of the broad, palaeodune between Bo-Langvlei and the Indian Ocean. The elevation profile commences in the north (west end of profile) and ends in the south.

4.2. Site description

The site is presently covered in a dense forest of invasive alien vegetation with pine trees and black wattle being the dominant species. Figures 10 to 12 show views of the southwest, south centre and southeast parts of the site as seen from the N2. It is noted that the N2 lies within a cutting that begins adjacent to the study area and gets deeper towards the east. The density of the bush on site and coverage of leaf litter and sticks is evident in Figure 13. The aerial view of the study area in Figure 14 shows the extent of alien vegetation coverage. The mined and rehabilitated site to the west (right hand side in the photograph) is also evident. Viewed from the north side of Bo-Langvej, all one can see of the study area is its skyline (Figure 15).



Figure 10: View towards the north from the N2 showing the entrance gate (in front of the vehicle) at the south-western corner of the property. Photograph provided by Stephen Davey.



Figure 11: View towards the north from the N2 showing the dense alien vegetation present on the site. Photograph provided by Stephen Davey.



Figure 12: View towards the northwest from the N2 showing the dense alien vegetation in the south-eastern corner of the study area. Photograph provided by Stephen Davey.



Figure 13: View towards the north from within the site showing the sandy track leading through the dense alien vegetation. Photograph provided by Stephen Davey.



Figure 14: Recent oblique aerial view of the study area (red polygon) looking towards the south and showing the alien vegetation cover at present. The N2 is visible running along the far (southern) edge of the property. Photo: Stephen Davey.



Figure 15: View of the study area from the north side of Bo-Langvlei. The study area is indicated by the red arrow and the area with no pine trees immediately to its right (west) is the already mined and rehabilitated property next door. This view is from 1.5 km away.

5. HERITAGE CONTEXT

This section of the report contains the desktop study and establishes what is already known about heritage resources in the vicinity of the study area. What was found during the field survey as presented below may then be compared with what is already known in order to gain an improved understanding of the significance of the newly reported resources.

5.1. Archaeology

Little archaeological research has been done in the area but the rock shelters known as Glentyre and Oakhurst both occur within 4 to 5 km of the study area. Goodwin (1937) and Fagan (1960) describe the finds from Glentyre but disagreed as to whether one or more industries occurred. From the illustrations in Fagan (1960) the majority of artefacts appear typical of the Holocene microlithic. The Oakhurst Rock Shelter is a far more important site and includes deposits spanning the majority of the Holocene. It has been extensively studied by Goodwin (1938) and Schrire (1962). Schrire supported Goodwin's ascription of three LSA industries being present in the c. 2.5 m deep deposit with a possible but dubious Middle Stone Age (MSA) occupation at the base (Deacon 1998). Further work on assemblages dating to the early Holocene lead Sampson (1972, 1974) to assign the name 'Oakhurst' to such materials, although others were starting to use the name 'Albany' for similar materials elsewhere in the southern Cape (Deacon 1972; Klein 1974).

Just two commercial assessments from the vicinity are available for consultation. Of most relevance is the study by Orton and Smuts (2007) which was on the same dune ridge about 1.4 km to the east. Vegetation cover was heavy but a small patch of exposed sand and calcrete as well as some mole hills were examined for signs of archaeology with none found. Hart and Halkett (2003) looked at a farm 6 km northeast of the study area and found an exposure of Early Stone Age (ESA) material in a denuded area, concluding that such material might be present more widely beneath the surface cover sands. A small rock shelter is known to occur in a granite cliff in Wilderness and contains a small Later Stone Age (LSA) deposit (personal observation 2018). Just east of Sedgefield Yates (2006) surveyed a similar sort of area, locating three quartz artefacts thought to be LSA. Nilssen (2006) examined an area just inland of the coastline at Sedgefield and reported no archaeological materials, perhaps largely due to the very dense bush which hampered his survey. A shell midden is known to occur at the beach carpark at Sedgefield (personal observation 2007).

More widely, the southern Cape is known to have widespread Stone Age resources associated with gravels underlying the cover sands. These appear to date largely to the ESA.

5.2. Palaeontology

The SAHRIS palaeosensitivity map has no shading in this area. At the NID application stage John Pether was thus consulted for advice. He noted that a sensitivity of 'medium' should likely have been accorded to this area for the purposes of the map but that in practice it can be generally regarded as being of low sensitivity. Research in one of the neighbouring sand quarries shows the dune ridge to be Pleistocene in age with dates of between about 20 000 and 150 000 years ago for the unconsolidated sands forming the upper 7 m of the sequence. Below this is aeolianite (Bateman *et al.* 2011). Pether is of the opinion that fossils are probably rare in these dune deposits, although he did highlight the several recent finds of fossil trackways in aeolianites along this part of the southern Cape coast. The present application concerns itself only/primarily with the unconsolidated dune sands which are likely of lower significance than the consolidated aeolianites. Pether did not believe that further study of the site from a palaeontological point of view would be worthwhile but did recommend that a chance find procedure be in place for the operation phase of the project.

5.3. Historical background

The original farm at Wilderness dates back to the late 19th century but it was only in the late 1920s that the village began to grow. The railway line was opened in 1928 and had Wilderness as its only station between George and Knysna. Vehicular traffic, however, could only access the area by means of the Seven Passes Road which ran close to the foot of the Outeniqua Mountains. After the end of World War II was the N2 built and by 1952 George and Knysna were linked by a tar road. The eastern suburbs of Die Dune and Kleinkrantz only commenced development once access to those areas was opened via the N2 (Legatt n.d.).

Although town planning at Sedgefield began in the 1920s (it was declared a town in 1929), it was only after the sale of the land to an entrepreneur in 1948 that development commenced in earnest (Discover Sedgefield 2019).

Farm 191 was created in 1898 when it was subdivided off of the parent farm. It had sections to the north and south of Bo-Langvlei. Portion 3 was created through subdivision in 1948 and was located to the south of the lake. It was further subdivided in 1982 when the northern part was subdivided off as Portion 30 (this is now part of Garden Route National Park) and again in 2006 when a narrow strip was subdivided off in the south as Portion 38 to allow for future N2 road reserve. Despite all these changes, there is no evidence that the present site – the remainder of Portion 3 – has ever been developed.

6. FINDINGS OF THE HERITAGE STUDY

6.1. Palaeontology

The site is unlikely to carry much palaeontological significance but the presence of isolated fossil bones in the dune sand cannot be ruled out. While the consolidated aeolianite within the dune could be of slightly greater significance, such deposits are not expected to be significantly impacted because the target resource is the unconsolidated dune sand. Beyond ensuring that a chance finds procedure is in place, John Pether considers that palaeontology is of no further concern.

6.2. Archaeology

Archaeological materials are unlikely to be present, although isolated stone artefacts cannot be ruled out. These would not be significant on their own. Archaeology is not considered to be of any further concern.

6.3. Graves

No graves are known to occur in the area but the occurrence of isolated, unmarked precolonial burials cannot be discounted. The chances of uncovering such graves, however, are deemed to be extremely small. Although now slightly outdated, Morris (1992) recorded no precolonial graves from the wider area.

6.4. Built environment

The site is entirely devoid of structures and no evidence exists that any structures have ever been present. A large modern house occurs immediately east of the north-eastern corner of the study area. It was built between 2005 and 2012 on the site of two smaller structures. These latter were not present on the 1959 aerial photography.

6.5. Cultural landscape

The 1938 aerial photograph (Figure 16) shows the site vacant but that minimal agricultural activity was occurring in the general area. Fence lines are visible by the variable vegetation density, no doubt due to use of the land for grazing. No road occurred between Bo-Langvlei and the ocean at that time. As noted in the Wilderness history above, this lack of access is what kept the area from being developed. By 1959 (Figure 17) the N2 had been built and the site was still vacant, as it remains today. It does appear from the dark colour of the vegetation, however, that forestry might well have been practiced at that time.



Figure 16: Aerial views dating to 1936 (Job 114, strip 19, photograph 18533) and 2019 (Google Earth) showing the site (red star) to be undeveloped. The N2 was not yet present either.

Given the general lack of historical development in the immediate vicinity of the study area, the cultural landscape is largely limited to the natural elements that have aesthetic significance. Important in this regard is the Garden Route National Park which abuts the study area immediately to its north (Figure 18) and the N2 as a scenic route which passes the southern boundary of the study area.



Figure 17: Aerial views dating to 1959 (Job 421, strip 11, photograph 05291) and 2019 (Google Earth) showing the site (red star) to be undeveloped. The N2 was then built and the subdivisions of Farm 191 are clearly visible.

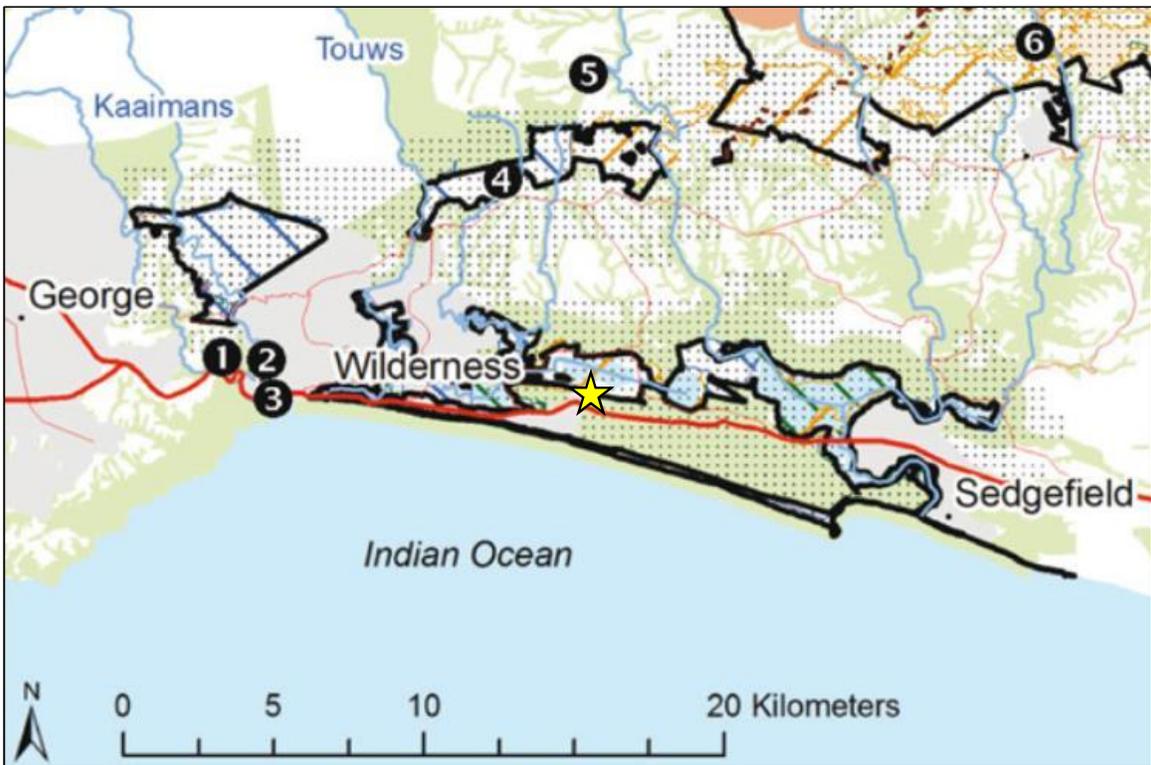


Figure 18: Extract of a map showing the various pieces of the Garden Route National Park around Wilderness and Sedgefield. The study area is at the yellow star. The stippled areas denote viewshed protection areas related to the GRNP. Source: Barendse et al. (2016: fig. 3).

GRNP was proclaimed on 6 March 2009. It is a park comprising of many fragments scattered along the south coast but including many important natural environments. The components of the Park are as follows:

- The Tsitsikamma Coastal and Forest National Parks which were originally proclaimed in 1964 and had several enlargements over the years;
- The Wilderness National Park which was proclaimed in 1983 and also saw several enlargements;
- The Knysna National Lake Area which was proclaimed in 1985; and
- Three former State Forests known as Farleigh Forest Estate Diepwalle Forest Estate and Tsitsikamma Forest Estate (these had been managed by what was then the Department of Water Affairs and Forestry) (SANParks 2012).

National Parks are considered to be heritage resources and, while no physical impacts to the park are envisaged, the visual assessment summarised in Section 6.6 below will deal with potential visual impacts to the GRNP.

The N2 is an important east-west artery linking the towns of the southern Cape. The section in this area is highly scenic and is well known as the 'Garden Route'. The scenery traversed by the road in the Wilderness-Sedgefield area includes the following:

- Massive palaeodunes along the coast that extend to more than 100 m in height in places (the site lies atop one of these dunes);
- The steep river gorge of the Kaaimans River immediately west of Wilderness;
- The heavily vegetated hill slopes that lead from the elevated coastal plain dominated by agriculture down to the coastal area dominated by the lakes and coastal settlements;
- The series of coastal lakes between Wilderness and Sedgefield, including the Bo-Langvlei which lies just north of the study area;
- The riverine landscapes of the Touws River and Serpentine between Wilderness and the study area; and
- In places there are spectacular views along the coastline, most notably at the mouth of the Touws River in Wilderness.

It is notable that in their extensive study of scenic resources Winter and Oberholzer (2013) rated the Swartvlei and its estuary as Grade I resources. This grading could very easily be extended to include Bo-Langvlei (to the north of the study area), especially since it is now included within the GNRNP.

6.6. Visual impact assessment

A VIA has been prepared by Lawson and Oberholzer (2019) and is included as Appendix 3 to the present report. Aside from non-heritage related visual receptors (some of which are, however, tourism-related), they identified the GRNP and the N2 scenic route ('Garden Route') as being visually sensitive. A 60 m buffer has been incorporated to the north to prevent visibility of the mine from the GRNP. To the south Lawson and Oberholzer (2019) note that the existing trees would screen the quarry from the N2 but the quarry would become highly visible if these trees were removed. A viewshed for the quarry was created (Figure 19) and shows that very little of the surrounding areas would be able to see the quarry. Furthermore, foreground structures and vegetation will reduce the visibility much further. They note specifically that the ridge along the northern edge of the site will screen the quarry from the north and the fact that the quarry is upslope from the N2 will also help

decrease visibility. The present author notes too that towards the eastern end of the site the N2 is cut into the slope such that an embankment offers further screening from the eastern side. The landscape is noted to have already been scarred by sand mining and that further mining could alter the rural sense of place. Lawson and Oberholzer (2019) note, however, that in the medium to long term the rehabilitation of the site would be of benefit. They provide several photomontages in their report and include views from the N2 (viewpoints 4 & 6). No photomontage from the GRNP to the north is provided since the quarry will not be visible from the north due to the intervening ridgeline.

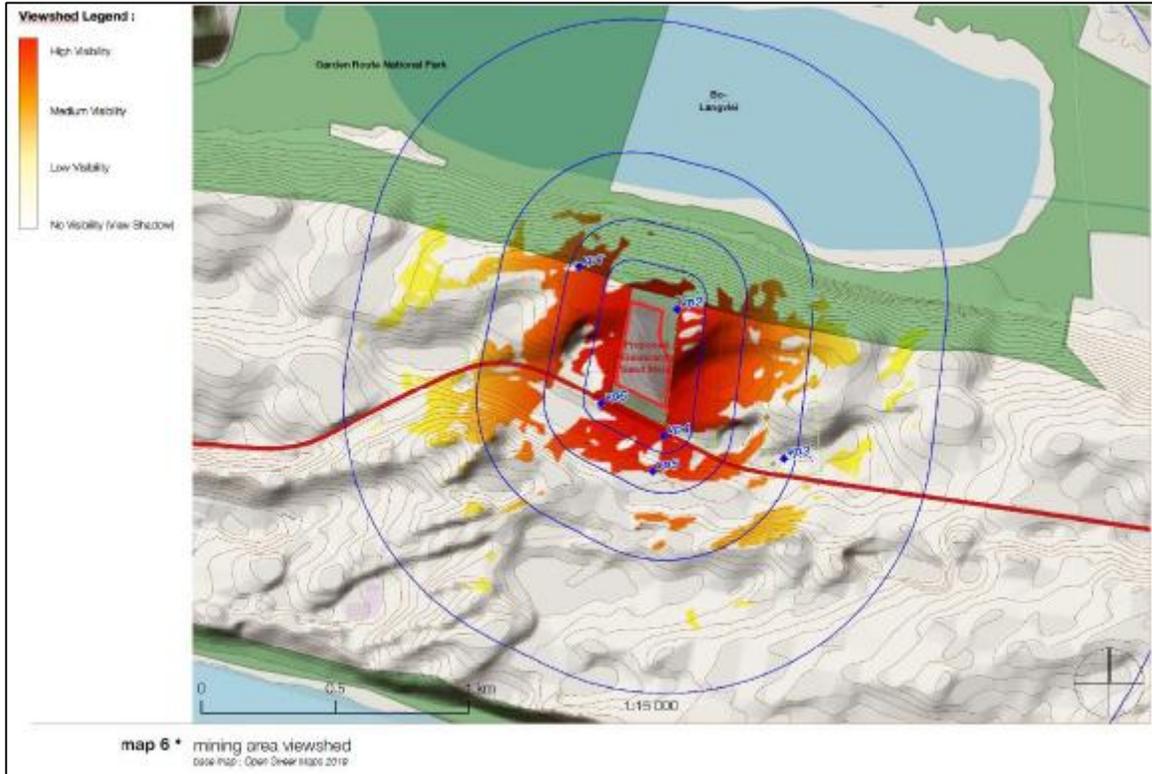


Figure 19: Viewshed for the proposed sand quarry. Source: Lawson and Oberholzer (2019: map 6).

6.7. Statement of significance and provisional grading

Section 38(3)(b) of the NHRA requires an assessment of the significance of all heritage resources. In terms of Section 2(vi), “cultural significance” means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. The reasons that a place may have cultural significance are outlined Section 3(3) of the NHRA (see Section 2 above).

Any archaeological and/or palaeontological resources that might be present are deemed to have low cultural significance for their scientific value. With no materials known, a grading of NCW is applied.

If graves occurred, they would have high cultural significance for their social value. They would be Grade IIIA if found but none are expected.

The Garden Route National Park is deemed to have high cultural significance for its aesthetic and scientific values and it is likely that parts of the park carry high social and/or spiritual significance as well. It should be regarded as being of at least Grade II significance. The ‘water landscape’ of lakes is a highly significant visual resource, largely because of the rarity of such resources in South Africa. Winter and Oberholzer (2013) have assigned part of this landscape Grade I but all the lakes together should be regarded as at least Grade II resources. The large Pleistocene dune cordon that separates the lakes from the sea is a significant landscape feature on the south coast and can be regarded as at least worthy of Grade IIIA. The N2 as a scenic route has high cultural significance for its aesthetic value. All these scenic resources together can be considered as at least Grade II and possibly even Grade I.

6.8. Summary of heritage indicators

Archaeological and palaeontological materials are of no further concern to this assessment because of the very low likelihood of significant finds being made. Graves, although important, are highly unlikely to be found. No indicators are required for these aspects of heritage.

The cultural landscape and associated scenic routes are highly significant heritage resources that require careful consideration.

- Indicator: The open mine pit and mining activities should not be visible from the N2.
- Indicator: The open mine pit and mining activities should not be visible from the Bo-Langvlei area to the north.
- Indicator: The visual berm should not be revealed by alien vegetation clearing until such time as it has established natural vegetation on it.

The landscape resources in relation to the site are mapped in Figure 19, while the GRNP is shown in Figure 20.

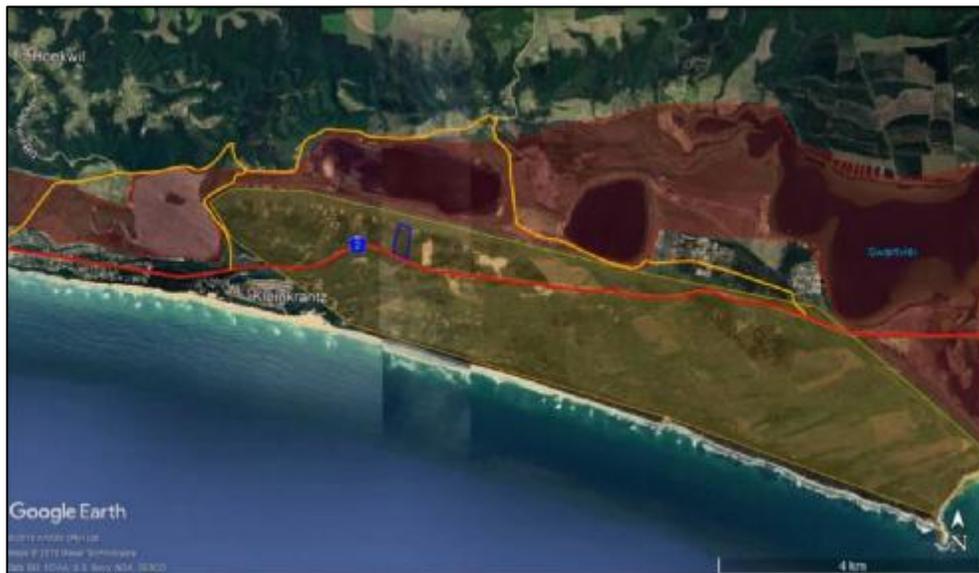


Figure 19: Mapping of significant heritage resources (excluding the GRNP) around the study area (blue polygon). Red indicates high significance at Provincial level (Grade II or higher), while orange indicates high local significance (Grade IIIA).



Figure 20: Mapping of the GRNP (yellow polygon) in the vicinity of the study area (blue polygon).

7. ASSESSMENT OF IMPACTS

7.1. Impacts to archaeological and/or palaeontological resources

Direct impacts to archaeological and/or palaeontological resources might occur during the construction or operational phases of the project. Any impacts experienced would be of very limited extent but would be permanent. The chances of such impacts occurring, however, are extremely small. The significance is therefore deemed to be **low**. In the case of palaeontology a positive outcome would emerge if fossils were reported and successfully rescued because such fossils are generally completely inaccessible to science if not exposed during large excavations. Regardless of mitigation measures, some isolated artefacts and/or fossils may be damaged or destroyed by the proposed mining. The chances are very small and the residual impacts are thus of **low** significance. No fatal flaws related to archaeology and/or palaeontology are expected from the proposed mining.

Table 1: Assessment of archaeological impacts.

	Before mitigation	After mitigation
Extent of impact	Site-specific	Site-specific
Consequence of impact	Very Low	Very Low
Duration of impact	Permanent	Permanent
Probability of impact occurring	Unlikely	Unlikely
Significance of impact	Very Low	Very Low
Status	Negative	Positive
Confidence	Certain	Certain

Reversibility	Irreversible
Replaceability	Irreplaceable
Cumulative impacts	Because no significant impacts to archaeology or palaeontology are expected, there will be no cumulative impacts.

7.1.1. Mitigation

No mitigation measures are suggested.

7.1.2. Management

Should any archaeological or palaeontological materials be found during the course of mining then they should be reported to HWC for assessment. Note that a chance finds procedure for the recording of fossil finds is appended to this report and should be included in the mine's EMP for later use if required.

7.2. Cultural landscapes, scenic routes and visual impacts

Direct impacts to the cultural landscape and visually sensitive landscape resources might occur during the construction and/or operational phases of the project. Any impacts experienced would be local but would be medium term, depending on the life of the mine. Impacts would definitely occur if the project goes ahead and are rated as being of **medium** significance before mitigation. The mitigation measures – largely already included within the project design – will reduce the extent of impacts to site specific and the consequence to very low because the sand mine would essentially not be visible from any surrounding areas. The post-mitigation significance is rated as **low**. There are no fatal flaws. It is noted that, although impacts would be similar, the western entrance is preferred because no cutting will need to be made to gain access to the site. The VIA finds that impacts before and after mitigation would be of **medium** and **medium-low** significance (Lawson & Oberholzer 2019: table 4).

Table 2: Assessment of impacts to the cultural landscape and scenic route.

	Before mitigation	After mitigation
Extent of impact	Local	Site specific
Consequence of impact	Medium	Low
Duration of impact	Medium	Medium
Probability of impact occurring	Definite	Definite
Significance of impact	Medium	Low
Status	Negative	Negative
Confidence	High	High
Reversibility	Reversible	
Replaceability	Irreplaceable	

7.2.1. Mitigation

The project design already includes the construction of a berm at the southern edge of the mining area (i.e. not within the 60 m N2 buffer zone). Further suggested mitigation measures are aimed at reducing the visibility of the mine and are as follows:

- It must be ensured that this berm is not revealed by alien vegetation clearing until such time as it has been vegetated;
- The entrance gate should be left as it is currently; and
- If a sign is required then it should be as small and unobtrusive as possible.

7.2.2. Management

Follow-ups should be undertaken after alien clearing to remove new seedlings. This will ensure the natural vegetation has the best chance of recovery and, in the long term, will restore the visual appearance of the Pleistocene dune cordon.

7.3. Existing impacts to heritage resources

There are currently no obvious threats to heritage resources on the site aside from the fact that the alien vegetation is preventing the natural vegetation from recolonising the dune.

7.4. The No-Go alternative

The No-Go alternative would see the site remaining as it is, infested with alien vegetation and unused. On the whole no heritage impacts are expected and the status would thus be neutral.

7.5. Cumulative impacts

Although two other sand mines are currently operating in the area, only one of them is minimally visible. Given that the proposed mine will not be visible from the surrounding areas, it is envisaged that the cumulative impacts will be of low significance. Other aspects of heritage are unlikely to be impacted and do not contribute to the assessment of cumulative impacts.

7.6. Levels of acceptable change

Any impact to an archaeological or palaeontological resource or a grave is deemed unacceptable until such time as the resource has been inspected and studied further if necessary. Impacts to the landscape are difficult to quantify but in general a development that visually dominates the landscape from many vantage points is undesirable. Because of the nature of the proposed development and mitigation measures in place, such an impact is not envisaged and the changes will thus be acceptable.

8. INPUT TO THE ENVIRONMENTAL MANAGEMENT PROGRAM

The only requirements are that:

- A fossil chance finds procedure (see Appendix 2) must be included in the EMP; and

- Alien vegetation control must proceed with regular follow-ups to remove seedlings and ensure the best chance for the recovery of the indigenous vegetation that should characterise the dune cordon.

9. EVALUATION OF IMPACTS RELATIVE TO SUSTAINABLE SOCIAL AND ECONOMIC BENEFITS

Section 38(3)(d) of the NHRA requires an evaluation of the impacts on heritage resources relative to the sustainable social and economic benefits to be derived from the development. Job creation will be minimal but it is likely that about three jobs would be created. Building sand supports the local economy. Because of the very minimal heritage impacts expected, these socio-economic benefits would likely outweigh the impacts.

10. CONSULTATION WITH HERITAGE CONSERVATION BODIES

The draft report was sent by email on 14th November 2019 to the following parties for comment:

- George Heritage Trust;
- Simon van der Stel Foundation Southern Cape; and
- George Municipality.

Responses to be added after consultation.

11. CONCLUSIONS

The only significant heritage resources are visually sensitive landscape resources. These include the lakes, the Pleistocene dune cordon, the GRNP and the roads through the area. Buffers have been incorporated in to the project design in order to eliminate visual impacts from both the north (GRNP) and south (N2) of the site. Overall the impacts to heritage are expected to be of very low significance after mitigation and the project is deemed acceptable. Given the buffers that have been incorporated into the project design, no further buffers are required. It is noted that two alternative access points have been proposed. The western access is favoured over the eastern one because the western one is existing and the eastern would require a cut into the embankment. Table 3 shows the project responses to the heritage indicators.

Table 3: Heritage indicators and design responses.

Indicator	Project Response
The open mine pit and mining activities should not be visible from the N2.	The buffer, berm and phased alien vegetation clearing mean that the mine will not be highly visible from the N2. The VIA shows that there will be a glimpsed view directly down the 60 m long access track from the south-western corner of the site.

The open mine pit and mining activities should not be visible from the Bo-Langvlei area to the north.	Due to a buffer, mining will be below the northern skyline of the site and will thus not be visible from the north.
The visual berm should not be revealed by alien vegetation clearing until such time as it has established natural vegetation on it.	A phased approach to alien vegetation clearing will be taken so as to ensure that indigenous vegetation has ample opportunity to return prior to exposure of the berm. The alien clearing and rehabilitation will be managed by a professional consultant.

11.1. Reasoned opinion of the specialist

The measures in place should ensure that impacts to heritage resources will be very minimal. As such, there is no heritage-related reason to stop the development proceeding as proposed.

12. RECOMMENDATIONS

It is recommended that the project be allowed to proceed with the western access point being preferred over the eastern one. The following conditions should be incorporated into the environmental authorisation:

- A fossil chance finds procedure must be included in the EMPr;
- It must be ensured that the berm is not revealed by alien vegetation clearing until such time as it has been vegetated;
- To avoid drawing attention, the entrance gate should be left as it is currently;
- If a sign is required then it should be as small and unobtrusive as possible; and
- If any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

13. REFERENCES

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APPENDIX 1 – Curriculum Vitae



Curriculum Vitae

Jayson David John Orton

ARCHAEOLOGIST AND HERITAGE CONSULTANT

Contact Details and personal information:

Address: 40 Brassie Street, Lakeside, 7945
Telephone: (021) 789 0327
Cell Phone: 083 272 3225
Email: jayson@asha-consulting.co.za

Birth date and place: 22 June 1976, Cape Town, South Africa
Citizenship: South African
ID no: 760622 522 4085
Driver's License: Code 08
Marital Status: Married to Carol Orton
Languages spoken: English and Afrikaans

Education:

SA College High School	Matric	1994
University of Cape Town	B.A. (Archaeology, Environmental & Geographical Science) 1997	
University of Cape Town	B.A. (Honours) (Archaeology)*	1998
University of Cape Town	M.A. (Archaeology)	2004
University of Oxford	D.Phil. (Archaeology)	2013

*Frank Schweitzer memorial book prize for an outstanding student and the degree in the First Class.

Employment History:

Spatial Archaeology Research Unit, UCT	Research assistant	Jan 1996 – Dec 1998
Department of Archaeology, UCT	Field archaeologist	Jan 1998 – Dec 1998
UCT Archaeology Contracts Office	Field archaeologist	Jan 1999 – May 2004
UCT Archaeology Contracts Office	Heritage & archaeological consultant	Jun 2004 – May 2012
School of Archaeology, University of Oxford	Undergraduate Tutor	Oct 2008 – Dec 2008
ACO Associates cc	Associate, Heritage & archaeological consultant	Jan 2011 – Dec 2013
ASHA Consulting (Pty) Ltd	Director, Heritage & archaeological consultant	Jan 2014 –

Professional Accreditation:

Association of Southern African Professional Archaeologists (ASAPA) membership number: 233

CRM Section member with the following accreditation:

- Principal Investigator: Coastal shell middens (awarded 2007)
Stone Age archaeology (awarded 2007)
Grave relocation (awarded 2014)
- Field Director: Rock art (awarded 2007)
Colonial period archaeology (awarded 2007)

Association of Professional Heritage Practitioners (APHP) membership number: 43

- Accredited Professional Heritage Practitioner

➤ Memberships and affiliations:

South African Archaeological Society Council member	2004 – 2016
Assoc. Southern African Professional Archaeologists (ASAPA) member	2006 –
UCT Department of Archaeology Research Associate	2013 –
Heritage Western Cape APM Committee member	2013 –
UNISA Department of Archaeology and Anthropology Research Fellow	2014 –
Fish Hoek Valley Historical Association	2014 –
Kalk Bay Historical Association	2016 –
Association of Professional Heritage Practitioners member	2016 –

Fieldwork and project experience:

Extensive fieldwork and experience as both Field Director and Principle Investigator throughout the Western and Northern Cape, and also in the western parts of the Free State and Eastern Cape as follows:

Feasibility studies:

- Heritage feasibility studies examining all aspects of heritage from the desktop

Phase 1 surveys and impact assessments:

- Project types
 - Notification of Intent to Develop applications (for Heritage Western Cape)
 - Desktop-based Letter of Exemption (for the South African Heritage Resources Agency)
 - Heritage Impact Assessments (largely in the Environmental Impact Assessment or Basic Assessment context under NEMA and Section 38(8) of the NHRA, but also self-standing assessments under Section 38(1) of the NHRA)
 - Archaeological specialist studies
 - Phase 1 archaeological test excavations in historical and prehistoric sites
 - Archaeological research projects
- Development types
 - Mining and borrow pits
 - Roads (new and upgrades)
 - Residential, commercial and industrial development
 - Dams and pipe lines
 - Power lines and substations
 - Renewable energy facilities (wind energy, solar energy and hydro-electric facilities)

Phase 2 mitigation and research excavations:

- ESA open sites
 - Duinefontein, Gouda, Namaqualand
- MSA rock shelters
 - Fish Hoek, Yzerfontein, Cederberg, Namaqualand
- MSA open sites
 - Swartland, Bushmanland, Namaqualand
- LSA rock shelters
 - Cederberg, Namaqualand, Bushmanland
- LSA open sites (inland)
 - Swartland, Franschhoek, Namaqualand, Bushmanland
- LSA coastal shell middens
 - Melkbosstrand, Yzerfontein, Saldanha Bay, Paternoster, Dwarskersbos, Infanta, Knysna, Namaqualand
- LSA burials
 - Melkbosstrand, Saldanha Bay, Namaqualand, Knysna
- Historical sites
 - Franschhoek (farmstead and well), Waterfront (fort, dump and well), Noordhoek (cottage), variety of small excavations in central Cape Town and surrounding suburbs
- Historic burial grounds
 - Green Point (Prestwich Street), V&A Waterfront (Marina Residential), Paarl

Awards:

Western Cape Government Cultural Affairs Awards 2015/2016: Best Heritage Project.

APPENDIX 2 – Palaeontological chance finds procedure

HWC PROCEDURE: CHANCE FINDS OF PALAEOLOGICAL MATERIAL

Introduction

This document is aimed to inform workmen and foremen working on a construction and/or mining site. It describes the procedure to follow in instances of accidental discovery of palaeontological material (please see attached poster with descriptions of palaeontological material) during construction/mining activities. This protocol does not apply to resources already identified under an assessment undertaken under s. 38 of the National Heritage Resources Act (no 25 of 1999).

Fossils are rare and irreplaceable. Fossils tell us about the environmental conditions that existed in a specific geographical area millions of years ago. As heritage resources that inform us of the history of a place, fossils are public property that the State is required to manage and conserve on behalf of all the citizens of South Africa. Fossils are therefore protected by the National Heritage Resources Act and are the property of the State. Ideally, a qualified person should be responsible for the recovery of fossils noticed during construction/mining to ensure that all relevant contextual information is recorded.

Heritage Authorities often rely on workmen and foremen to report finds, and thereby contribute to our knowledge of South Africa's past and contribute to its conservation for future generations.

Training

Workmen and foremen need to be trained in the procedure to follow in instances of accidental discovery of fossil material, in a similar way to the Health and Safety protocol. A brief introduction to the process to follow in the event of possible accidental discovery of fossils should be conducted by the designated Environmental Control Officer (ECO) for the project, or the foreman or site agent in the absence of the ECO. It is recommended that copies of the attached poster and procedure are printed out and displayed at the site office so that workmen may familiarise themselves with them and are thereby prepared in the event that accidental discovery of fossil material takes place.

Actions to be taken

One person in the staff must be identified and appointed as responsible for the implementation of the attached protocol in instances of accidental fossil discovery and must report to the ECO or site agent. If the ECO or site agent is not present on site, then the responsible person on site should follow the protocol correctly in order to not jeopardize the conservation and well-being of the fossil material.

Once a workman notices possible fossil material, he/she should report this to the ECO or site agent.

Procedure to follow if it is likely that the material identified is a fossil:

i The ECO or site agent must ensure that all **work ceases** immediately in the vicinity of

- the area where the fossil or fossils have been found;
- ii The ECO or site agent must **inform HWC of the find immediately**. This information must include photographs of the findings and GPS co-ordinates;
 - iii The ECO or site agent must compile a **Preliminary Report and fill in the Fossil Discoveries: HWC Preliminary Record Form** within 24 hours without removing the fossil from its original position. The **Preliminary Report** records basic information about the find including:
 - The date
 - A description of the discovery
 - A description of the fossil and its context (e.g. position and depth of find) Where and how the find has been stored
 - Photographs to accompany the preliminary report (the more the better):
 - A scale must be used
 - Photos of location from several angles Photos of vertical section should be provided
 - Digital images of hole showing vertical section (side);
 - Digital images of fossil or fossils.
 - iv Upon receipt of this **Preliminary Report**, HWC will inform the ECO or site agent whether or not a rescue excavation or rescue collection by a palaeontologist is necessary.
 - v **Exposed finds must be stabilized where they are unstable and the site capped, e.g. with a plastic sheet or sand bags**. This protection should allow for the later excavation of the finds with due scientific care and diligence. HWC can advise on the most appropriate method for stabilization.
 - vi If the find cannot be stabilized, **the fossil may be collect with extreme care** by the ECO or the site agent and put aside and protected until HWC advises on further action. Finds collected in this way must be safely and securely stored in tissue paper and an appropriate box. Care must be taken to remove the all fossil material and any breakage of fossil material must be avoided at all costs.

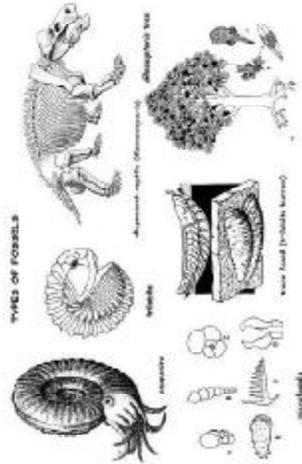
No work may continue in the vicinity of the find until HWC has indicated, in writing, that it is appropriate to proceed.

FOSSIL DISCOVERIES: HWC PRELIMINARY RECORDING FORM		
Name of project		
Name of fossil location		
Date of discovery		
Description of situation in which the fossil was found:		
Description of context in which the fossil was found:		
Description and condition of fossil identified:		
GPS coordinates:	Lat:	Long:
If no co-ordinates available then please describe the location:		
Time of discovery:		
Depth of find in hole:		
Photographs (tick as appropriate and indicate number of the photograph)	Digital image of vertical section (side)	
	Fossil from different angles	
	Wider context of the find	
Temporary storage (where it is located and how it is conserved)		
Person identifying the fossil	Name:	
	Contact:	
Recorder:	Name:	
	Contact:	
Photographer	Name:	
	Contact:	

Palaeontology: what is a fossil?

Fossils are the traces of ancient life (animal, plant or microbial) preserved within rocks and come in two forms:

- Body fossils preserve parts, casts or impressions of the original tissues of an organism (e.g. bones, teeth, wood, pollen grains); and
- Trace fossils such as trackways and burrows record ancient animal behaviour.



**How to report chance fossil finds:
What should I do if I find a fossil during construction/mining?**

If you think you have identified a fossil:

Immediately inform the ECO or Site Agent. He/she will then contact HWC and write a report and if necessary operations will stop in that specific area until the fossil is recovered

Heritage Western Cape
ceoheritage@westerncape.gov.za
 021 483 5959
www.hwc.org.za
 Ilifa Wab-Koop
 Heritage Western Cape

Types of palaeontological finding - What does a fossil look like?

Fossils vary in size, from fossilised tree trunks and dinosaur bones down to very small animals or plants. Finds can be **individual fossils** (one isolated wood log or bone) or **clusters and beds** (several bones, teeth, animal or plant remains, trace fossils in close proximity or bones resembling part of a skeleton). A bed of fossils is a layer with many fossil remains.

Below there is a list of few examples of fossils which may be identified during excavations in the Western Cape.

image	Description	Image	Description
	Leaves		Small shells and other shells
	Fossil wood		Bones of larger animals
	The remains of fish and marine life (e.g. teeth, scales, starfish)		Large burrows made by moles and other animals
	Stromatolites		Traces made by burrowing insects (ants, wasps, dung-beetles etc.)
	Animal footprints		



APPENDIX 3 – Visual Impact Assessment

ANNEXURE O:

Heritage Western Cape Approval

Our Ref: HM/ BITOU / SEDGEFIELD / FARM 191 PORTION 3
Case No.: 19051606SB0521E
Enquiries: Stephanie-Anne Barnardt
E-mail: stephanie.barnardt@westerncape.gov.za
Tel: 021 483 9370
Date: 7 June 2019

Pieter Visser Trust
PO Box 603
Melkbosstrand
7437
info@pietervissertrust.com



RESPONSE TO NOTIFICATION OF INTENT TO DEVELOP: HIA REQUIRED
In terms of Section 38(B) of the National Heritage Resources Act (Act 25 of 1999) and the Western Cape Provincial Gazette 6061, Notice 298 of 2003

NOTIFICATION OF INTENT TO DEVELOP: PROPOSED KLEINKRANTZ SAND QUARRY, FARM 191 PORTION 3, SUBMITTED IN TERMS OF SECTION 38(B) OF THE NATIONAL HERITAGE RESOURCES ACT (ACT 25 OF 1999)

CASE NUMBER: 19051606SB0521E

The matter above has reference.

Heritage Western Cape is in receipt of your application for the above matter received on 21 May 2019. This matter was discussed at the Heritage Officers meeting held on 3 June 2019.

You are hereby notified that, since there is reason to believe that the proposed Kleinkrantz Sand Quarry will impact on heritage resources, HWC requires that a Heritage Impact Assessment (HIA) that satisfies the provisions of section 38(3) of the NHRA be submitted. This HIA must have specific reference to the following:

- Visual impacts of the proposed development.

The required HIA must have an integrated set of recommendations.

Please note, should you require the HIA to be submitted as a Phased HIA, a written request must be submitted to HWC prior to submission. HWC reserves the right to determine whether a phased HIA is acceptable on a case by case Basis.

The comments of relevant registered conservation bodies; all Interested and Affected parties; and the relevant Municipality must be requested and included in the HIA where provided. Proof of these requests must be supplied.

HWC reserves the right to request additional information as required.

Should you have any further queries, please contact the official above and quote the case number.

Yours faithfully

Dr. Mxolisi Dlamuka
Chief Executive Officer, Heritage Western Cape

www.westerncape.gov.za/cas

Street Address: Protea Assurance Building, Green Market Square, Cape Town, 8000 • Postal Address: Private Bag 33067, Cape Town, 8000
• Tel: +27 (0)21 483 9350 • E-mail: hwc@wec.westerncape.gov.za

Straatadres: Protea Assuransgebou, Groenemarktplein, Kaapstad, 8000 • Posadres: Privaatsak 33067, Kaapstad, 8000
• Tel: +27 (0)21 483 9350 • E-pos: hwc@wec.westerncape.gov.za

ANNEXURE P:

Closure and Rehabilitation Plan

Closure Plan: Kleinkrantz Sand Quarry located on the Remainder of Portion 3 of Farm 191 (George RD)

- Proposed mining area (5.3697 ha)
- Cadastral boundary
- Cadastral boundary (additional)
- Infrastructure: Weigh bridge and site office to be removed
- Contour (5m interval) - Slopes (Mining area) : 22° (or 1:2.5)
- Mining area corner point
- 047 N2 Access number

Date: October 2019
 Aerial image: GoogleEarth
 Boundary information:
 SA Surveyor General
 www.BoundaryHunter.co.za
 Ryk Taljaard (PGP1440)

Coordinate system/s:
 Y & X - WG23 (m)
 Lat & Long - WGS84 Decimal Degrees

ID	Y	X	Latitude	Longitude
M1	29778.76	3763163.77	-33.995091	22.677685
M2	29663.91	3763197.00	-33.995394	22.678927
M3	29672.28	3763288.27	-33.996217	22.678833
M4	29630.75	3763393.93	-33.997170	22.679279
M5	29646.04	3763560.55	-33.998672	22.679108
M6	29833.18	3763471.04	-33.997860	22.677086



Scale 1 : 2,500 @ A4



Mining and Rehabilitation Plan: Kleinkrantz Sand Quarry located on the Remainder of Portion 3 of Farm 191 (George RD)

- Proposed mining area (5.3697 ha)
 - Cadastral boundary
 - Nursery
 - Visual berm
- Mining blocks:
- Active
 - Future

- Proposed infrastructure:
Access road/weigh bridge/site office
- Contour (5m interval)
Slopes (Mining area) : 22° (or 1:2.5)
- Mining area corner point
- 047 N2 Access number
- ➔ Topsoil dozing direction
- ➔ Sand mining direction

Date: October 2019
 Aerial image: GoogleEarth
 Boundary information:
 SA Surveyor General
 www.BoundaryHunter.co.za
 Ryk Taljaard (PGP1440)

Coordinate system/s:
 Y & X - WG23 (m)
 Lat & Long - WGS84 Decimal Degrees

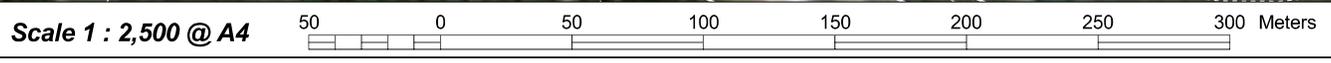
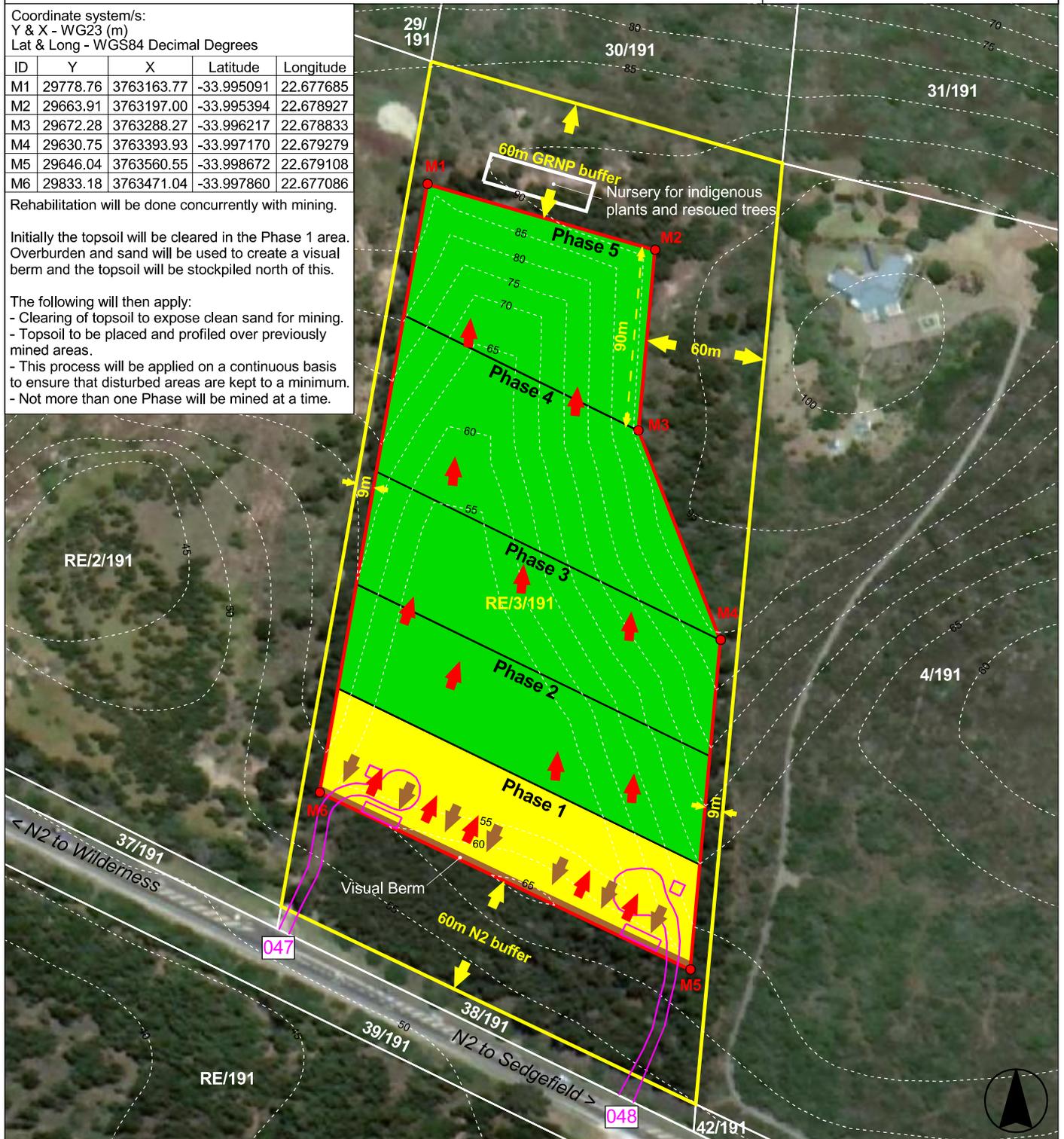
ID	Y	X	Latitude	Longitude
M1	29778.76	3763163.77	-33.995091	22.677685
M2	29663.91	3763197.00	-33.995394	22.678927
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M4	29630.75	3763393.93	-33.997170	22.679279
M5	29646.04	3763560.55	-33.998672	22.679108
M6	29833.18	3763471.04	-33.997860	22.677086

Rehabilitation will be done concurrently with mining.

Initially the topsoil will be cleared in the Phase 1 area. Overburden and sand will be used to create a visual berm and the topsoil will be stockpiled north of this.

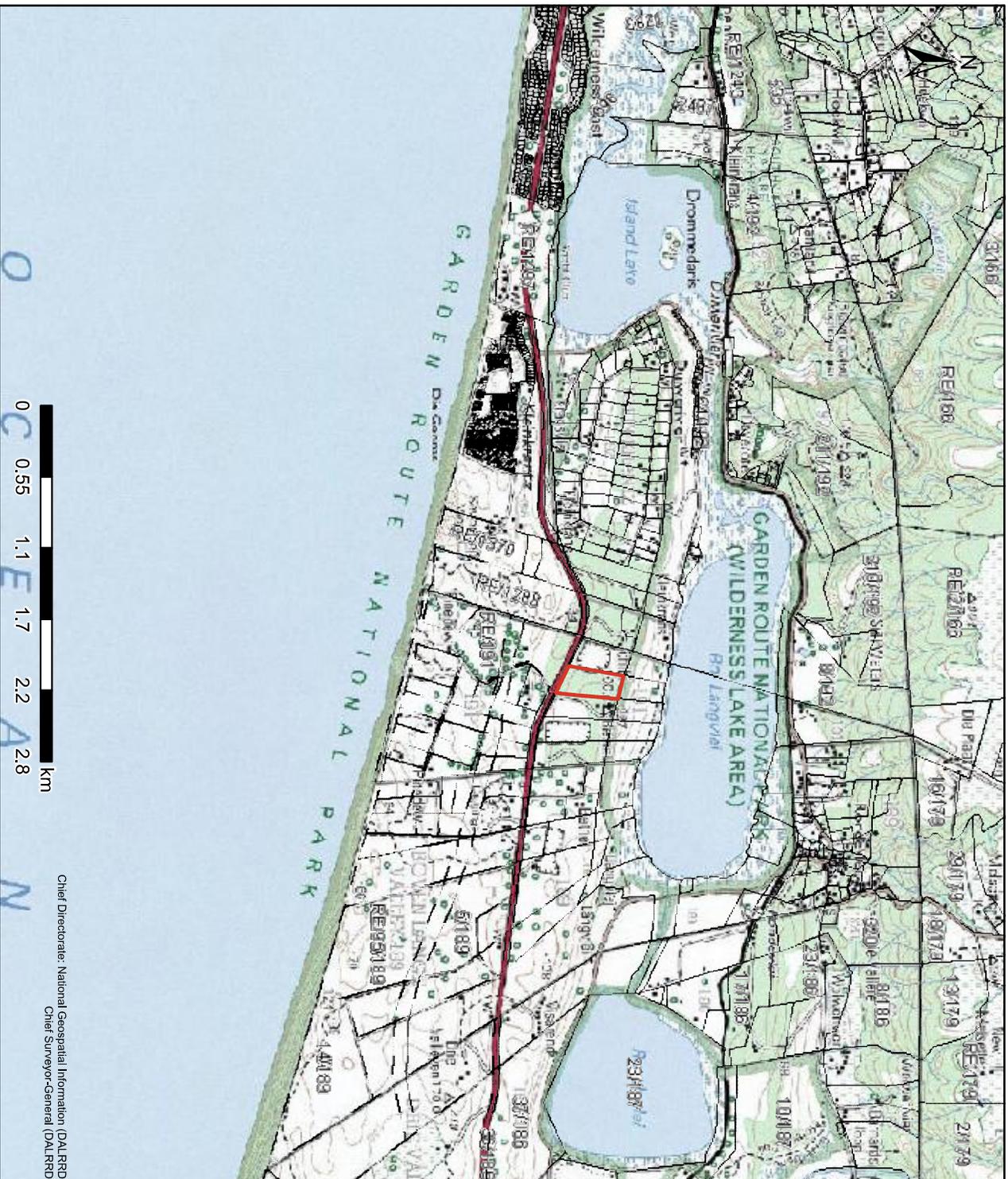
The following will then apply:

- Clearing of topsoil to expose clean sand for mining.
- Topsoil to be placed and profiled over previously mined areas.
- This process will be applied on a continuous basis to ensure that disturbed areas are kept to a minimum.
- Not more than one Phase will be mined at a time.



PLAN 1:

Locality Plan



Chief Directorate: National Geospatial Information (DALRRD)
 Chief Surveyor-General (DALRRD)

Legend

- Farm Portions
- Erf

Map Center: Lon: 22°40'15.8"E

Lat: 34°0'10.9"S

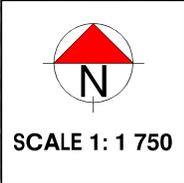
Scale: 1:50,000

Date created: 2025/10/12



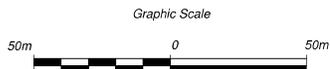
PLAN 2:

Site Development Plan



REM PORTION 3 OF THE FARM NO 191,
DIVISION GEORGE

SITE DEVELOPMENT PLAN



DRAWN:	MV	CHECKED:	MV
PLAN NO:	P19/16F19/PH-03SDP03		
PLAN DATE:	10 December 2025		
STORED:	z:\drawings\Aapp\Pr19\16F19\PH03SDP03.dwg		

Marike Vreken
URBAN & ENVIRONMENTAL PLANNERS

21 Trotter Street, PO Box 2180
KNYSNA 6570

(044) 382 0420
086 459 2987
e-mail: marike@vreken.co.za
www.vreken.co.za

PLAN 3:

Land Use Plan

