



DRAFT ENVIRONMENTAL IMPACT REPORT & ENVIRONMENTAL MANAGEMENT PROGRAMME

for

HARTENBOS GARDEN ESTATE

on

Erf 3122 Hartenbos Heuwels, Hartenbos

In terms of the

National Environmental Management Act (Act No. 107 of 1998, as amended) & 2014 Environmental Impact Assessment, as amended



Prepared for Applicant:

Hartenbos Hills Propco (Pty) Ltd

Date: 12 January 2023

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PURPOSE OF THIS REPORT:

Departmental Decision-Making

APPLICANT:

Hartenbos Hills PropCo (Pty) Ltd



CAPE EAPRAC REFERENCE NO:

MOS495/08

DEPARTMENT REFERENCE:

16/3/3/2/D6/18/0002/22

SUBMISSION DATE

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National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended &
Environmental Impact Assessment Regulations 2014

HARTENBOS GARDEN ESTATE



Erf 3122, Hartenbos Heuwels, Hartenbos (Mossel Bay District), Western Cape Province

Submitted for:

Stakeholder Review & Comment

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CONTENTS OF AN IMPACT REPORT

Section 3 in Appendix 3 of R982 of the 2014 EIA Regulations, details the information that is necessary for a proper understanding of the process, informing all preferred alternatives, including location alternatives, the scope of the assessment, and the consultation process to be undertaken through the environmental impact assessment process. The table below lists the minimal contents of an **impact assessment report** in terms of these Regulations and provides a reference on where to find said information in this report.

	ACTIVITY	STATUS																											
(a) i	Details of the EAP	Louise-Mari van Zyl is a registered EAP (Reg No 2019/1444) and holds a Master's Degree in Geography & Environmental Studies from Stellenbosch University.																											
(a) ii	Expertise of the EAP	+/-19 years																											
(b)	<p>Detailed description of the proposed activity (preferred alternative) is for a lifestyle estate with private open spaces and amenities inclusive of services.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #4a86e8; color: white;">Land Use</th> <th style="background-color: #4a86e8; color: white;">Ptn Nos</th> <th style="background-color: #4a86e8; color: white;">No of Units</th> </tr> </thead> <tbody> <tr> <td>Dwelling house</td> <td>1-258</td> <td>258</td> </tr> <tr> <td>Terrace Apartments (Flats)</td> <td>259-261</td> <td>3</td> </tr> <tr> <td>Private Open Space with tearooms</td> <td>262-269</td> <td>8</td> </tr> <tr> <td>Nature conservation area</td> <td>270</td> <td>1</td> </tr> <tr> <td>Restaurant, bar, offices utility</td> <td>271</td> <td>1</td> </tr> <tr> <td>Village precinct (retirement resort), flats, clubhouse, frailcare & recreation *</td> <td>272-277</td> <td>6</td> </tr> <tr> <td>Private Road</td> <td>278</td> <td>1</td> </tr> <tr> <td>Municipal Reservoir</td> <td>279</td> <td>1</td> </tr> </tbody> </table>		Land Use	Ptn Nos	No of Units	Dwelling house	1-258	258	Terrace Apartments (Flats)	259-261	3	Private Open Space with tearooms	262-269	8	Nature conservation area	270	1	Restaurant, bar, offices utility	271	1	Village precinct (retirement resort), flats, clubhouse, frailcare & recreation *	272-277	6	Private Road	278	1	Municipal Reservoir	279	1
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(c)	Description of the Property and the location of the activity on the property	<p>C05100040000312200000</p> <p>Erf 3122 Hartenbos Heuwels, Hartenbos</p> <p>34°07'42.99"S 2205'07.16E°</p>																											

(d)	Description of the Environment that may be affected by the activity and the manner in which aspects of the environment may be affected.	
(e) i	Public participation, steps undertaken in accordance with the plan of study.	
(e) ii	List of persons, organizations and organs of state that were registered as interested & affected parties.	
(e) iii	Summary of comments received from, and a summary of issues raised by registered I&APs (on the draft EIR), the date of receipt of these comments and the response of the EAP on those comment.	
(e) iv	Copies of any representations, objections and comments received from registered I&APs	
(f)	Description of the need & desirability of the project and identified potential alternatives to the proposed project, including advantages and disadvantages that the proposed activity or alternatives may have on the environment and the community that may be affected by the activity.	
(g)	Methodology used in determining the significance of potential environmental impacts.	
(h)	Description and comparative assessment of all alternatives identified during the EIA process.	
(i)	Summary of the findings and recommendations of any specialist report(s) on all specialised processes.	
(j)	Description of all environmental issues that were identified during the EIA process, an assessment of the significance of each issue and an indication of the extent to which the issue could be addressed by the adoption of mitigation measures.	
(k)	An assessment of each identified potentially significant impact, including:	

(k) i	Cumulative impacts	
(k) ii	Nature of the impacts	
(k) iii	Extent and duration of the impacts	
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(k) v	Degree to which the impact can be reversed	
(k) vi	Degree to which the impact may cause irreplaceable loss of resources	
(k) vii	Degree to which the impact can be mitigated.	
(l)	Description of any assumptions, uncertainties and gaps in knowledge.	
(m)	Opinion as to whether the activity should or should not be authorized and any conditions that should be made.	
(n) i	Environmental impact statement containing a summary of the key findings	
(n) ii	Environmental impact statement containing a comparative assessment of the positive and negative implications of the proposed activity and identified alternatives.	
(o)	Draft Environmental Management Plan	
(p)	Copies of all the specialist reports.	Attached as appendices.
(q)	Specific information that may be required by the competent authority	Copy of the previous EIR with all appendices.

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ABBREVIATIONS

AIA	Archaeological Impact Assessment
BGIS	Biodiversity Geographic Information System
BID	Background Information Document
CBD	Central Business District
ACMP	Archaeological Conservation Management Plan
CEMP	Construction Environmental Management Plan
DEFF	Department of Environmental Affairs (National)
DEA&DP	Department of Environmental Affairs and Development Planning
DEIR	Draft Environmental Impact Report
DSR	Draft Scoping Report
FEIR	Final Environmental Impact Report
EAP	Environmental Impact Practitioner
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMP	Environmental Management Programme
GA	General Authorisation
GPS	Global Positioning System
HIA	Heritage Impact Assessment
HWC	Heritage Western Cape
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
LUPA	Land Use Planning Act
NEMA	National Environmental Management Act
NEMAA	National Environmental Management Amendment Act
NEMBA	National Environmental Management: Biodiversity Act
NERSA	National Energy Regulator of South Africa
NHRA	National Heritage Resources Act
NID	Notice of Intent to Develop
NSBA	National Spatial Biodiversity Assessment
NWA	National Water Act
Pre-App	Pre-Application
SANBI	South Africa National Biodiversity Institute
SANS	South Africa National Standards
SPLUMA	Spatial Land Use Management Act
SDF	Spatial Development Framework
TIA	Traffic Impact Assessment
WULA	Water Use License

SUMMARY

1 STATUS & CONTEXT OF THE ENVIRONMENTAL PROCESS

There are subtle, but specific differences between a **scoping report (phase)** and an **impact assessment report (phase)**.

In short, the first (scoping report), helps to understand whether the site in general (Erf 3122, within the greater Mossel Bay / Hartenbos area) is suitable for (residential) development as proposed (it was determined that Erf 3122 is the Applicant's 'preferred site' i.e. no alternative site, with a 'preferred footprint' inside the boundaries of the property informed by numerous specialist studies). The scoping report has been subjected to stakeholder engagement, as well as public participation on two separate occasions, before it was adopted by the Competent Authority.

By adopting the scoping report, the Competent Authority agreed to the level of assessment, including the methodology, the expertise required, as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of 'the activity'.

The impact assessment report, contains additional and more detailed impact assessments by applicable specialists, looking in greater detail at the '**development footprint**' *within the study site* itself. Importantly it also presents a **revised site development plan** as the preferred alternative that was specifically developed to further reduce and mitigate potential visual impacts and improve the connectivity and linkages of the on-site open space with the surrounding natural areas.

Specialist scoping studies support the development of a **designated portion of Erf 3122** (development footprint) deemed to be **least sensitive** and submissions made by stakeholders during the scoping phase did not indicate objection to '*the activity*' i.e. residential, on the '*preferred site*' (Erf 3122).

This draft impact assessment (DEIR) report reflects on the outcome of the detailed specialist studies and also includes the environmental management & maintenance programme that gives instructions on how the identified impacts must be managed throughout the construction and operational phases of the project.

2 RECOMMENDATIONS OF THIS EIR

The proposal by the Applicant is to develop a portion of Erf 3122 for residential development inclusive of amenities and services. The proposal includes single residential erven, apartments, frail care units, restaurant, clubhouse, tea rooms, private open space as well as conservation areas and includes its own private services and internal roads.

Although portions of the site is deemed sensitive and conservation authorities have highlighted aspects to be considered and taken into account to avoid and minimise potential negative impacts, there has been general support from all of the independent specialists and no objection from public stakeholders throughout the ongoing environmental application.

The EIA process, through various investigations, has found that the preferred Alternative 3 can be supported and that the potential negative impacts that may arise from this development can be effectively mitigated to an acceptable level, with no impacts of high significant remaining after mitigation.

It is thus Cape EAPrac's considered opinion that the Alternative 3 for Hartenbos Garden Estate can be considered for environmental approval subject to implementation of the Environmental Management Plan (EMP) and general compliance by the Applicant and future Managing Agent of the Estate¹.

3 SITE DESCRIPTION & GENERAL ATTRIBUTES

The study site is the property of the **Afrikaanse Taal & Kultuur Vereniging (ATKV)**, but is in the process of being **transferred** to the Applicant who is duly authorised to conduct the Scoping & Impact Assessment application process.

Erf 3122 is the remaining, undeveloped portion of the original Hartenbos Township Development and represents **Township Extension 4 as per approved General Plan**. As such the property falls **within the designated urban edge** of Hartenbos and is earmarked for residential development in accordance with the 2017, as well as the updated June 2022 Spatial Development Framework (SDF), of the Mossel Bay Municipality.

The subject property is situated west of the N2 freeway approximately 2,5km from the central business district (CBD) of Hartenbos Town which developed between Louis Fourie Road and the Indian Ocean. Surrounding land uses include the following:

- **Mossel Bay municipal conservation area** surrounds the property along most of its boundaries to the south, west, north and partially the east as well
 - This conservation area forms a natural boundary/buffer between the township / urban edge of Hartenbos and the remaining agricultural areas further to the West;
- The existing **Hartenbos Heuwels residential neighbourhood** lies to the east with fragmented open space areas,
- The **2019 approved Renosterbos Lifestyle Development on Erf 1799** (approximately 37ha) borders the property directly to the south (currently under construction with a 2022 amendment for densification and changes to the approved site plan under consideration);
- A large **Utility Zone** property borders the property on the East (indicated in Red in Figure 1);
- A **Community Zone** property borders the property to the East (indicated in Blue in Figure 1);
- The **NumNum Residential Estate, railway line** and **Aalwyndal small holdings** are located further to the south;
- The medium density **Sonskynvallei housing node** and **mining activities** are located to the north-west of the site (separated by the Municipal Conservation Area).

Although vacant land is shown bordering the central Eastern part of the site, it must be noted that those areas are set aside for development effectively blocking the existing Hartenbos Heuwels open space corridor. The only remnant, natural and functional open space that has

¹ The Applicant will be responsible for implementation and compliance of all applicable authorisations up to the point where the future Managing Agent will take transfer and responsibility of continued compliance. At such a point the Applicant (then Holder of the EA) must transfer the EA to the future Managing Agent through a formal Amendment Application process.

long-term ecological value for linkages, lies directly to the South, West and North of the property as the Municipal Conservation Area. Potential ecological corridors to the East towards Hartenbos Heuwels are not feasible as they are blocked with existing and future township development. The focus for connectivity is therefore placed on linking the internal designated conservation area with the surrounding Municipal Conservation Area.

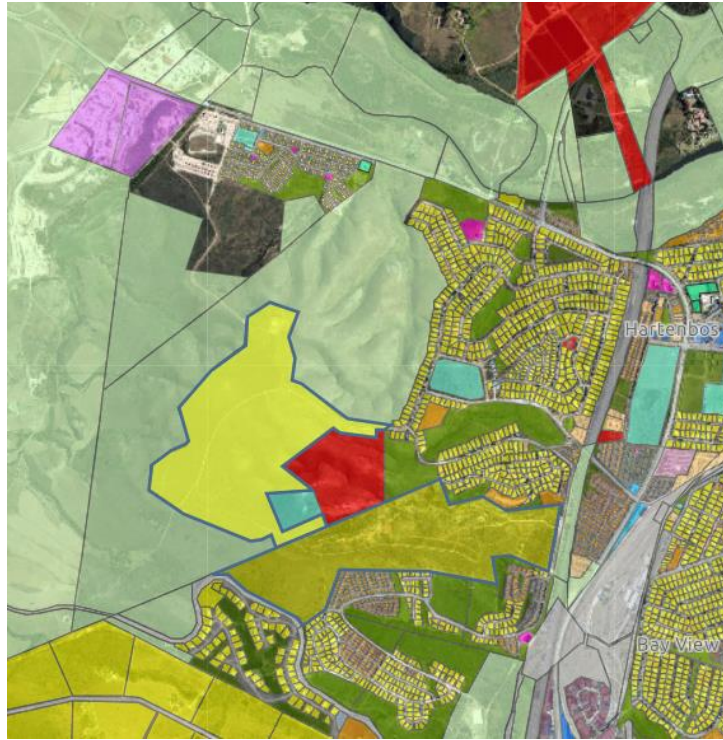


Figure 1: Land use and zoning of properties surrounding and in proximity to Erf 3122 (Source: Mossel Bay Municipal GIS Viewer).



Figure 2: Site location showing surrounding land use and ongoing development/expansion of the urban areas to the south-east as Renosterbos Lifestyle Estate (Source: Google Earth).

Compared to the higher lying flat portions of the site, the valleys and steep slopes on the property remain relatively undisturbed, resulting in the subject property being covered by both alien vegetation (infestation) and natural vegetation in various levels of succession (recovery).

There are multiple accesses to the subject property via the existing road network. One is taken directly from **Kameeldoring Avenue**, which links with **Louis Fourie Road (R102)** via **Boekenhout Avenue**. Louis Fourie Road (R102) is the main transportation route linking Mossel Bay to the south with Hartenbos and environments to the north.

The main **access** to the site has a gate to prevent unauthorised vehicular access, however it is noted from trails that people still access on foot (by-pass the gate) and unregulated vehicle access points (motorbikes / vehicles) are also noted from within Hartenbos Heuwels which results in unfortunate illegal dumping, as well as erosion where informal trails and tracks are made/used without permission from the owners/applicant.

An alternative access to the subject property is taken via **Geelhout Avenue and Waboom Street** which end at the **R102 and R328 intersection**. The R328 is an extension of Louis Fourie Road which connects Hartenbos with Oudtshoorn via the Robinson Pass.

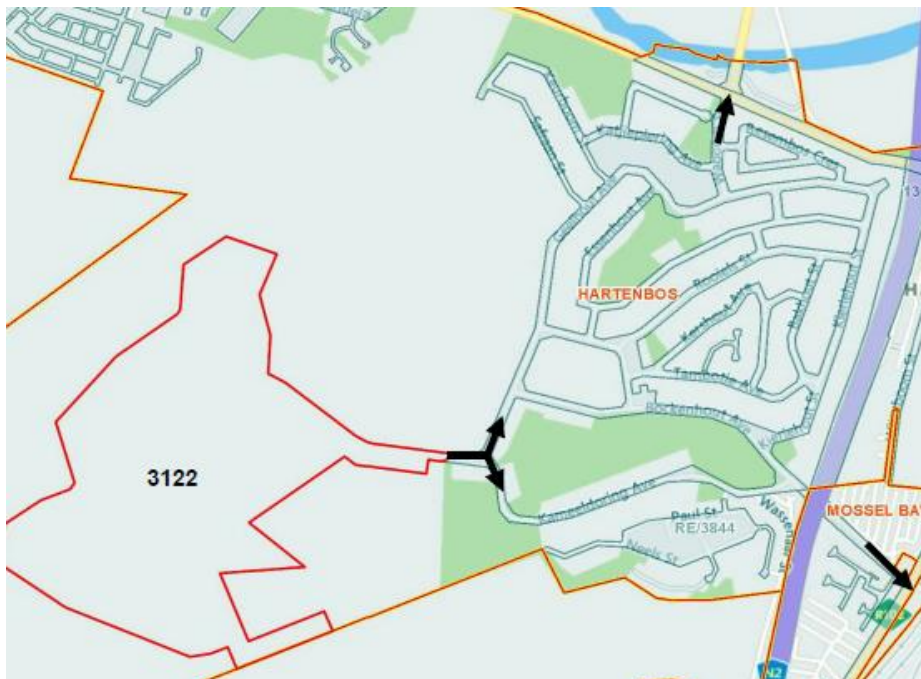


Figure 3: Access points/routes to and from the site to main arterial roads.

Further details on the site specifications are described in below table noting that the site is **zoned Agriculture I**, however because of its earlier inclusion as Extension 4 of Hartenbos Heuwels, Act 70 of 70 of the Agricultural Act no longer applies. The Department of Agriculture in their comment on the previous application (dated 31 March 2015, REF: 20/+9/2/4/7/141) confirmed that no further agricultural studies or approval are required in terms of the Conservation of Agricultural Resources Act (CARA).

Table 1: General property details (Source: Planning Report 2021).

Description	Erf 3122 Hartenbos
Location	West of Kammebos Avenue Hartenbosheuwels
Extent	60,5190ha
Registered owner	DIE AFRIKAANSE TAAL-EN KULTUURVERENINGING Offer to purchase: Hartenbos Hills Propoco (Pty) Ltd
Title Deed	T 24075/1995 (Copy of Title Deed attached)
Existing zoning	Agriculture Zone
Restrictive Conditions	None in Title Existing pipeline servitude and servitude area
Planning Legislation	Mossel Bay Municipality: Integrated Zoning Scheme By-Law Mossel Bay Municipality: By-Law on Municipal Land Use Planning, 2019

4 PROPOSED HARTENBOS GARDEN ESTATE DEVELOPMENT

This development proposal is likely to be developed in four (4) separate phases over time, as the market dictates. Following the outcome of the EIA process (if authorised), a **further 12 – 24 months** is set aside to obtain all the necessary approvals i.e. town planning/land use, services agreements, WULA, building plans etc. This scale of development is likely to then be develop over a period of **8-10 years**.



Figure 4: Phasing proposed for the Hartenbos Garden Estate.

The proposed development in its preferred alternative state at assessment level, comprises the following components:

ALTERNATIVE 3 (PREFERRED ALTERNATIVE)	
1.1	<u>PORTIONS 1-258:</u>
The proposed residential component of the development which will be zoned Single Residential Zone I (SRZI) is in extent the largest urban land use within the development. A total of +/-258 single residential erven (<i>previously 280 erven</i>) are proposed as part of the development on erven varying in size from 200m² to 747m² in extent.	
These residential erven include a combination of:	
<ul style="list-style-type: none"> • 18 Garden Houses (200m² erven) (<i>previously 40 houses</i>) 	
<ul style="list-style-type: none"> • 112 smaller residential erven (<350m²) and 	
<ul style="list-style-type: none"> • 149 larger residential erven (350m²->600m²). 	
1.1	<u>PORTIONS 259-261:</u>
A total of +/-54 apartments (3x18) varying from 1 bedroom to 3 bedrooms are proposed on the individual portions as part of the proposed development on the subject property. These three portions will be developed in phases 2, 3 and 4 respectively.	
In order to facilitate the proposed terrace apartments (flats) on the proposed portions, the portions will have to be rezoned to General Residential Zone III (GRZIII).	
1.1	<u>PORTION 271:</u>
The intention is to utilize Portion 271 for communal facilities which comprise, but is not limited to, a restaurant and sport and recreation centre with parking and will be zoned Private Open Space Zone II (OSZII) with Consent Use	
1.1	<u>PORTIONS 272-277</u>
This portion which will be zoned General Residential Zone III (GRZIII) with Consent Use as 'Retirement Resort' represents a variety of land uses measures ±3,267 ha in extent and comprises the main focal point of the proposed development with the communal amenities and specialized services (<i>previously 2.43ha</i>). <i>This area increased in size because of the requirement to reduce all the structures on this area from three (3) to two (2) storey height.</i>	
The precinct will include the following:	
<ul style="list-style-type: none"> • Clubhouse 	
<ul style="list-style-type: none"> • Recreation Centre 	
<ul style="list-style-type: none"> • Village Apartments 	
<ul style="list-style-type: none"> • Health Care 	
<ul style="list-style-type: none"> • Clubhouse 	
<ul style="list-style-type: none"> • Approximately 230 parking bays (basement and ground floor level) (<i>previously 248 parkings</i>) 	
<u>Ground floor:</u>	
<ul style="list-style-type: none"> • Entrance foyer and courtyard 	
<ul style="list-style-type: none"> • Homeowners Association / Managing Agent offices 	
<ul style="list-style-type: none"> • Sales Office 	
<ul style="list-style-type: none"> • Restaurant 	
<ul style="list-style-type: none"> • Kitchen 	
<ul style="list-style-type: none"> • Lounge & Game Room 	

• Library
• Convenient store
• Hair and nail salon
• Cinema room
• Slop Room
• Outside braai area
• Public toilets
• Nurse's room
<u>First floor</u>
Provision is made on the first floor of the buildings for a total of approximately 20 one bedroom assisted living and comprehensive care centre units respectively. These single rooms will vary in size from 28m ² to 45m ² .
<u>Recreation Centre:</u>
Provision is made in a separate building behind the clubhouse building for indoor gym with rehabilitation facilities and pool area as well as a multifunctional hall . The proposed building also includes ablution facilities and storerooms and measure ±440m ² in extent. The indoor sports facilities include but not limited to a gymnasium, aerobic area, indoor pool and other associated facilities , while the multifunctional hall will be a communal facility which can be used for any purpose from social gatherings, church services and dances . The proposed building will lead out onto an outdoor recreation area which will be landscaped and will function as a central courtyard on the site and which is earmarked for outside play and recreation purposes .
<u>Village Apartments:</u>
The proposed village apartments comprise eight (8) double storey (ground floor, plus first floor) buildings grouped around the central courtyard (outside recreation area) within the Village Precinct and on the abutting Portions 273-277). <i>Previously five (5) three storey buildings.</i>
An estimated 152 village apartment units (previous 144 units) are proposed within these buildings on the proposed Portions and comprise a combination of 1, 2 and 3 bedroom units which will vary in size from ±40m ² to ±100m ² . Apart from the bedrooms provision is also made for a bathroom and open plan kitchen and lounge area as well as balconies. The required parking bays for the proposed apartments are provided for in the proposed basements of each of the buildings as well as on ground level within the Village Precinct. These parking areas have direct access from the proposed internal private road network. These apartment buildings are all linked with each other as well as with the communal and health care facilities within the Village Precinct by formal walkways. These apartments will provide an alternative residential option for those who require smaller units in close proximity to the communal and health care facilities within the development.
<u>Health Care:</u>

Although this development will not be an exclusive retirement development, provision is made in the development for **specialized facilities** normally associated with retirement resort. The proposed **health care units** and **comprehensive care units** will accommodate those **members of the public** who needs **health care on a continuous basis within an area where they can be monitored and cared for.**

Approximately **26 comprehensive care units** are proposed inside a two (2) storey (ground floor, plus first floor) health care centre building on the Village Precinct. Previously 34 units.

This building will be located immediately north of the proposed clubhouse and will be linked thereto with covered walkways. The proposed health care apartments which are proposed on all three floors comprise a bedroom and a bathroom. These rooms will be accessed from a covered walkway which leads to the staircase and lift shaft. This building will function exclusively as a health care facility and will provide a accessible service to residents of the development.

In addition to the comprehensive care apartments the health care building will also make provision for other facilities directly associated with such care which include but not limited to the following:

- Reception,
- Communal dining and lounge area in the proposed courtyard,
- Doctor’s rooms,
- Consulting rooms,
- Nurse’s room,
- Private gardens,
- Satellite kitchen,
- Public toilets,
- Slop room,
- Staff room, and
- Administrative office.

In addition,+/-**20 one bedroom assisted living units** which will function collectively with the health care centre are proposed on the first floor of the proposed clubhouse building. These units with associated storage areas will be linked with the abutting health care building and facility immediately to the north thereof with covered walkways on all three levels as clearly depicted on the attached plans.

- **Private Roads** and access
- **Services** (second Municipal reservoir at the existing Hartenboskop Reservoir as part of municipal planning, stormwater, sewage, water and electricity connections).

The following table provides a summary of the preferred alternative as presented during the scoping phase consisting of the following components:

Ptn Nos	No of Units	Extent (ha)	%	Zoning/Consent	Land Use	
1-258	258	±10,5502	17,4	Single Residential I (SRI)	Dwelling house	
259-261	3	±0,8394	1,4	General Residential Zone III (RZIII)	Terrace Apartments (Flats)	
262-269	8	±11,8950	19,7	Open Space Zone II (OSZII):Consent use	Private Open Space with tearooms	
270	1	±23,9630	39,6	Open Space Zone III (OSZIII)	Nature conservation area	
271	1	±0,3686	0,6	Open Space Zone II (OSZII): Consent use	Restaurant, bar, offices utility	
272-277	6	±3,2660	5,4	General Residential Zone III (RZIII): Consent use	Village precinct (retirement resort), flats, clubhouse, frailcare & recreation *	
278	1	±8,7082	14,4	Transport Zone III (TZIII)	Private Road	
279	1	±0,9286	1,5	Utility Zone (UZ)	Municipal Reservoir	
TOTAL	279	60,5190ha	100			

5 ACCESS & SERVICES

Access will be via the existing **Kameeldoring Lane** (main road through Hartenbos Heuwels) with a 20m wide road reserve with **options** to divert **directly to Louis Fourie Drive** via Boekenhoutstreet, or the R102/R328 intersection.

Internal roads will have a maximum surface area of 5m with a 13m wide road reserve whilst the main access into the Estate will exceed 8m in road width.

Upgrades to municipal roads infrastructure are **part of the Municipal Arterial upgrades** linked to **existing/approved developments** and include:

- A 60m long designated left turn lane along the southern approach of Louis Fourie Road onto Boekenhout Street. This upgrade serves both the recently approved Renosterbos development (currently under construction) and that of Erf 3122 (Hartenbos Garden Estate);
- Exclusive right turning lane on Waboom Street at the R102/R328/Louis Fourie intersection as per conditional approval of the Outeniquabosch development.

It has been noted from the Traffic Impact Assessment (TIA) that the Municipality has approved the TIA with the above-mentioned conditions. The Municipality will again be consulted as part of the ongoing environmental process to determine if any further upgrades may be required, most notably for intersections within the existing Hartenbos Heuwels and at what point the necessary upgrades must be implemented to avoid unnecessary traffic congestion.

To services the development a municipal **1200kl reservoir** is to be constructed next to the existing 3.5Mg/l Hartenboskop municipal reservoir within the defined municipal services site in the far northern portion of the property. The existing municipal reservoir (inclusive of the new 1200kl reservoir) is registered with an existing servitude. This servitude road must remain a gravel road and not be tarred to minimise further impacts on the butterfly habitat that surrounds the reservoir site.

Stormwater discharge points will be towards natural low-lying areas with erosion control measures and overland discharge according to SUDS protocols.

Sewage from the development will be accommodated by the existing Municipal wastewater treatment works. New sewage pump stations (minimum four) are proposed on the development site at low lying areas. These pump stations will be fitted with overflows and backup generators in case of power failures to prevent pollution. These activities have been

considered as part of the Water Use License (WULA) as they do fall within the regulated areas of seepage wetlands along the bottom valleys.

The **existing Sonskynvallei electric substation** has sufficient capacity to accommodate the full demand of the proposed development. The proposed development can connect to the **existing 11kV overhead line** that runs from the Sonskynvallei substation along the eastern boundary of the property.

Construction waste from the development will be accommodated at the existing Great Brak construction rubble site and **operational phase** will be collected and temporarily stored at the estate entrance from where it will be collected by the Municipality and transported to the District Regional PetroSA landfill site.

The Municipality in response to the Planning Application (2019) indicated that electrical, stormwater, roads and solid waste management is sufficiently addressed. They will be required to re-confirm services capacity and availability as part of the environmental application prior to decision-making.

6 ALTERNATIVES

The current land use (vacant property with no particular active land use at present) permits agriculture as a primary right, with allowance for a single residential dwelling, which according to the Municipal By-Laws allows for the following activities as per below Table.

The primary right being agriculture (grazing / cultivation) as well as consent uses under this zoning. Since the property has not been actively farmed in the past ten (10) years the transformation for most of these uses will require prior Environmental Authorisation (with the exception of natural grazing).

Primary Use	Consent Use
Agriculture	<ul style="list-style-type: none"> • Abattoir • Airfield • Agricultural industry (>2000m²) • Animal care centre • Aqua-culture • Camping site • Farm shop • Farm grave yard • Freestanding base telecommunication station • Function venue • Helicopter landing pad • Off-road trail • Plant nursery • Quarry • Renewable energy structure • Shooting range • Tourist facilities • Utility service

According to the NEMA Regulations (2014 as amended) 'agriculture' for purposes of the Regulations means ".....*any cultivation or raising of crops, feeding, breeding, keeping or raising of livestock*".

The definition of 'alternatives' in relation to the same Regulations, means ".....*different means of meeting the general purpose and requirements of the activity,and includes the option of not implementing the activity*".

With the exception of tourist facilities/nursery/function venue, the **consent uses and primary use** under Agricultural Zoning, **is not deemed compatible with that of an urban area mostly due to indirect impacts such as odour (i.e. associated with domestic animals / agri-industry) and the Applicant has no intention of developing under the Primary Right or Consent Use.** Furthermore, the site **does not contain 'agricultural resources'** in the sense of water to irrigate with, or as drinking water for domestic animals, hence this primary right is unlikely to be feasible. At the same time, implementing **agriculture as an alternative**, does not fall within the parameters of the definition of 'alternative' since it will **not meet the general purpose and requirements of the activity which is deemed to be urban development.**

The preferred alternative as presented in the Final Scoping Report was further amended to accommodate the outcome of the scoping phase:

- **No-Go (vacant with no development): Alternative 1** as a farming unit with primary rights, is not deemed a reasonable/feasible option, given the lack of agricultural resources such as available drinking water for livestock, transportation challenges to bring in and remove livestock through an established residential area, lack of appropriate fencing to house livestock, lack of ancillary facilities and/or infrastructure i.e. stores / irrigation infrastructure / camps for keeping animals for grazing purposes for instance. Most of the agricultural consent uses are not deemed compatible with neighbouring residential developments and the Applicant has no intention of implementing any of these land uses. This alternative thus entails the **site remaining vacant and the status quo persisting.** Given the designated land use for infill development, within the urban edge of Hartenbos, with existing access and services readily available on the site, it is unlikely that this site will remain undeveloped/unoccupied for an extended period of time. Invasive alien clearing is a mandatory requirement in terms of the National Environmental Management Biodiversity Act (NEMBA), as well as the Conservation of Agricultural Resources Act (CARA), and although the ATKV as landowner (not the Applicant) is legally obliged to comply with these Acts that will see environmental conditions of the property improve, they have not done so in the past, no Directives have been issued in terms of the NEMBA for them to do so, and the site continues to be a fire risk with the presence of high biomass and invasive alien vegetation going unchecked. Uncontrolled access will continue to present challenges both in terms of illegal activities i.e. dumping, creating cycle paths, erosion and also a risk of land invasion given the proximity of this site to town.
- **Alternative 2:** Was the site development proposal presented in the final scoping report. This layout was the preferred alternative given that it was based on the outcome of specialist (scoping level) input to help identify the most suitable development areas.
 - This alternative was previously **modified** by (a) **excluding tea rooms** from the designated Nature Conservation Areas and keeping only those in the Private

Open Space areas; (b) **excluding the communication tower** from the proposal as insufficient detail and design is available to assess this activity.

- **Alternative 3:** This alternative takes into account the outcome of the **scoping phase** with inputs from key authorities, **visual impact assessment, ecological fire management, open space functionality and loss of landscape connectivity**. In considering the potential development of

The above alternatives were presented in the final scoping report as the alternatives to be considered comparatively for the purposes of the impact assessment phase. All other iterations and/or modified development options have been scoped out as not being feasible and/or viable.

The recommendation for the implementation of Alternative 3 is based on the fact that the proposed development will occur in a broader area, within a mosaic of vegetation and habitat that is highly fragmented and disturbed by abutting township development and agriculture with the only remnant of long-term natural area being that of the Municipal Conservation Area.

7 ENVIRONMENTAL REQUIREMENTS

The current assessment is being undertaken in terms of the **National Environmental Management Act** (NEMA, Act 107 of 1998 as amended). This Act makes provision for the identification and assessment of activities that are potentially detrimental to the environment and which require authorisation from the competent authority (in this case, the Provincial Department of Environmental Affairs and Development Planning) based on the findings of an Environmental Assessment.

The proposed development entails a number of listed activities, which require a **Scoping & Environmental Impact Reporting (S&EIR) process**, which must be conducted by an independent environmental assessment practitioner (EAP). *Cape EAPrac* has been appointed to undertake this process

The listed activities associated with the proposed development, as stipulation under 2014 Regulations 983, 984 and 985 are shown in the table below.

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1	Describe the portion of the proposed development to which the applicable listed activity relates.
9	Development of infrastructure exceeding 1000m in length for bulk transportation of water or storm water (b) excluding where such infrastructure will occur within an urban areas.	Although the site falls within the designated urban edge according to the municipal SDF, it does not conform to the definition of an 'urban area' according to the Regulations, as such bulk infrastructure must be considered where necessary.
12	Development of <ol style="list-style-type: none"> Dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or 	The proposed development entails the development of infrastructure with a physical footprint exceeding 100 square metres within a watercourse and/or in proximity to watercourses for stormwater outlets, access roads and sewage pump stations.

	<p>II. Infrastructure or structures with a physical footprint of 100 square metres or more</p> <p>Where such development occurs</p> <p>I. Within a watercourse</p> <p>II. Infront of a development setback or</p> <p>III. If no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse.</p>	
19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.	The proposed development entails the development of infrastructure with a physical footprint exceeding 10 square metres within a watercourse and/or in proximity to watercourses for stormwater outlets, access roads.
24	<p>The development of a road-</p> <p>II With a reserve wider than 13,5 meters or where no reserve exists where the road is wider than 8 meters; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial, or institutional purposes.</p>	The main arterial access road (internal) to be constructed will be wider than 8m and external upgrades to main access routes/intersections.
28	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation before or after 1 April 1998 and where such development will occur (i) inside an urban area and the total area to be developed will exceed 5ha in size.	Area was utilised for grazing purposes prior to the historical subdivision of Hartenbos Heuwels Extension 4. However it does not falls within the definition of the Regulations with reference to urban area therefore it must be considered.
Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3	Describe the portion of the proposed development to which the applicable listed activity relates.
2	Development of reservoirs for bulk water supply with a storage capacity of more than 250 cubic meters.	1200kl reservoir to supplement the existing 3.5Mg/l reservoir on the property within the designated municipal services site.
12	<p>The clearance of an area of 300m² or more of indigenous vegetation except where such clearance is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEM;BA or prior to the publication of such a list, within an area that has been identified as critically endangered</p>	More than 300m ² of indigenous vegetation with an ecological threat status of critically endangered will be cleared for the proposed development.

	in the National Spatial Biodiversity Assessment 2004.	
Activity No(s):	Provide the relevant Scoping and EIR Activity(ies) as set out in Listing Notice 2	Describe the portion of the proposed development to which the applicable listed activity relates.
15	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance where such clearance of indigenous vegetation is required.	The area to be transformed for the proposed development is ± 30 ha which amounts to roughly 40% of the site.
<p>Note: Only those activities listed above shall be considered for authorisation. The onus is on the Applicant to ensure that all applicable listed activities are included in the application. Environmental Authorisation must be obtained prior to commencement with each applicable listed activity. If a specific listed activity is not included in an Environmental Authorisation, a new application for Environmental Authorisation will have to be submitted.</p>		

8 PLANNING CONTEXT

Due to the current zoning being Agriculture I, a rezoning and subdivision application is required to change the land use to Subdivisional Area. To this end a Town Planning application was submitted to the Mossel Bay Municipality in **June 2021** with relevant consent uses and departures. This application will be updated where necessary once the environmental application process is concluded.

The outcome of the environmental application process will ultimately inform the Municipality's decision on the planning application.

It is noted that the site is **earmarked for residential development** according to the 2019 as well as the updated 2022 **Mossel Bay Spatial Development Framework**. The Town Planner motivates that as such the development proposal is deemed to be **compatible with the spatial planning** of the area.

Due to the fact that Erf 3122 is an undeveloped portion of the greater Hartenbos Heuwels development (as approved in General Plan), the Municipality deems it to be within the 'urban edge' of Hartenbos. The development proposal is seen as being **in line with the local planning context of the area**.

The site is located between the Sonskynvallei township, the Municipal Conservation Area and the existing Hartenbos Heuwels extensions 1, 2 & 3 and as such is the furthest that Hartenbos Heuwels can expand because the municipal conservation area forms the edge of urban development for Hartenbos Heuwels.

According to the Mossel Bay SDF (2022) and Barbour (2022), as a town within the greater Mossel Bay area, Hartenbos is a fast developing node with an increasing demand for **secure housing developments**. Existing vacant erven within the area are mostly associated with non-secure township areas or larger erven, that do not have controlled access and that are not in high demand.

	ESTIMATED POPULATION		
	Total residential units / households	Vacant residential erven	Estimated population
GREAT BRAK RIVER	3712	510	11136
GLENTANA	1019	188	14193
FRIEMERSHEIM	390	160	1170
MIDBRAK	3827	519	11481
BRANDWACHT	262	9	786
MOSELBAAI PLASE	634	123	1902
HARTENBOS	4962	638	14886
AALWYNDAL	77	6	231
VOORBAAI	2878	406	8634
MOSEL BAY	4990	390	14970
DA NOVA	254	0	762
D'ALMEIDA / TARKA	3226	166	9678
KWANONQABA	7439	71	22317
DANABAAI	2194	600	6582
COASTAL TOWNS AND RESORTS	475	334	1425
HERBERTSDALE	347	35	1041
RUITERBOS	130		390
INFORMAL SETTLEMENTS	6077		18231
	42893	4155	139815

Figure 5: Estimated population figures/households/vacant erven from 2010 Census and 2016 Mossel Bay survey (Mossel Bay SDF, 2022).

9 SPECIALIST/TECHNICAL INPUT

The following **specialist** and **technical input** was obtained to inform site constraints and the development proposal/alternatives and is discussed in detail in the main report. Professional input comprises of various specialist and technical reports and are listed below.

Note that in terms of the May and October 2020 Protocols Gazetted by the Minister of Environmental Affairs, all specialists must be **SACNASP registered** where the protocol so prescribes and all reports must adhere to the protocols where necessary.

Technical investigations are not subject to the protocols, however the professionals must still be registered in terms of their professional affiliations.

TECHNICAL INVESTIGATIONS:

- Geotechnical
- Civil Engineering
- Electrical Engineering
- Stormwater Design
- Traffic
- Planning
- Landscaping

SPECIALIST IMPACT ASSESSMENTS

Baseline specialist scoping reports were included with the Scoping Report and are not reflected in this Impact Assessment Report.

Archaeological Investigation

Dr Peter Nilssen

Faunal Investigation	Simon Todd (Simon Todd Consulting) & Dr Marius vd Vyfer (Chepri Consulting) Dr Jonathan Conville conducted the specialist (scoping) review and impact assessment.
Freshwater Investigation	Dr Justine Ewert-Smith (Freshwater Consulting Group)
Heritage Investigation	Stefan de Kock (Perception Planning)
Social Investigation	Tony Barbour
Paleontological investigation	John Pether
Visual Investigation	Bapela Cave Klapwijk
Botanical Investigation	Dr Dave McDonald (Bergwind Botanical Surveys)
Biodiversity Investigation	Dr Dave McDonald (Bergwind Botanical Surveys)

NOTE: Specialist studies were undertaken over an extended period of time given availability of specialists and/or where one specialist was awaiting another study to be finalised before being able to conclude his/her scoping study. Although site inspections for such studies were done more than 12 months prior to scoping, some during 2017/2018 as part of the pre-planning stage, most specialists inspected the site again during 2021 – 2022.

All relevant specialists have been provided with access to the original (previous) EIA documentation. They are required to consider changes of (previous) findings in terms of the current legislative context, landscape, spatial planning and site conditions. In addition all of the specialist studies undertaken as part of the previously EIA process are also attached as an Addendum to this DEIR.

10 POTENTIAL KEY RISKS / CONSTRAINTS & IMPACTS

The project team and specialist input identified the following as potential issues/concerns/impacts to date. The public participation process helped identify additional potential concerns, risks and impacts (both positive and negative) that may arise from this development proposal. Key issues are summarised below:

- Fire risk (the site is situated within a high fire risk area and Hartenbos Heuwels have experienced damaging wildfires in recent years that affects this site and threatens the Hartenbos Heuwels private residences). Uncontrolled access to Erf 3122 is viewed as a major contributing reason for the occurrence of wild fires in this particular area;

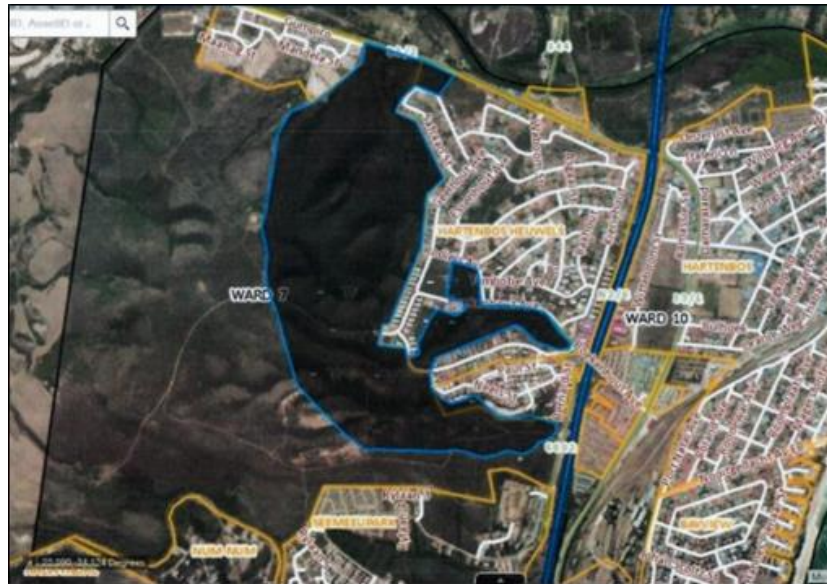


Figure 6: Burn scar January 2019 (Source: Edge 2021).



Figure 7: Burn scar from 2011 wild fire (Source: Helme 2016).

- Additional traffic and particularly the potential impact of increased traffic on intersections onto arterial roads and through existing township areas, as well as construction traffic;
- Environmental impact associated with the proposed development, most notably biodiversity (ecological patterns and processes) and impact on habitat/species diversity and corridor movement;
- Management of invasive alien vegetation within undeveloped areas (also linked to fire risk);
- Benefit of creating additional employment opportunities through construction and operational components;
- Impact on non-renewable energy resources;
- Benefit of added income generated through rates & rates, direct and indirect employment opportunities;
- The visual impact of the proposed development along the ridgeline;
- Historical decisions (negative) on previous applications to be considered along with relevant specialist/reports that was used to inform the historic application/assessment.

Table 2: Potential impacts/risks associated with the proposed development as broken up into specific disciplines.

Possible Constraints	Specialist Input
Ecological (fauna, flora, biodiversity)	<p>Active alien clearing is required for the nature conservation areas (most notably the valleys and watercourses) in order to ensure that the environment will also benefit from the proposed development. An Alien Clearing Management Plan forms part of the EMMP.</p> <p>Fire management is raised as a concern although it is unlikely to be a major risk factor to development nodes themselves, however the area is known for wildfires and therefore the EMMP includes fire management considering open space and ecological burning as part of the overall management goals for the site.</p> <p>Protection of any natural forest/protected species and applying for the necessary permits for any species of special concern/protected.</p> <p>Ecological functioning and linkages to neighbouring remaining natural areas as operational conditions.</p>
Fire Management	<p>Proximity of frail care to areas that will require ecological burning.</p> <p>Controlled fires must not be compromised once the area is occupied. Ecological burning regime provided as part of the EMMP.</p> <p>Neighbouring areas to the west are conservation areas that must be burned and smoke from such fires may pose a nuisance to residents.</p>
Freshwater	<p>The site contains a number of on-site watercourses and bottom valley wetlands. Unnecessary encroachment of development onto these features is unwanted. Aquatic buffers on all major drainage lines and smaller tributaries are accommodated in the preferred alternative layout to minimise potential impacts. Structures extending close to the watercourses i.e. stormwater outlets/sewage pump stations are considered into the WULA.</p> <p>Active alien clearing along all affected watercourses must be implemented as a mitigation measure to help improve the aquatic environment that will be affected by this proposal.</p>
Heritage	<p>Context of the site and visual issues connected with landscape character.</p>
Social	<p>Meeting housing demand specifically for secure (gated) developments as people relocating to the area come from areas deemed to be high-risk and are used to high levels of security.</p> <p>Employment opportunities during construction and operational phase.</p> <p>Skills transfer and training is important to optimise benefit to previously disadvantaged and lower income groups.</p>

Traffic	Operational access through Hartenbos Heuwels and intersections onto Louis Fourie and R108/R386. Dealing with construction traffic through Hartenbos Heuwels. Ensuring that road design/construction take into account the local (wet) climate to ensure sufficient life cycle of road infrastructure.
Butterfly	Species identified in proximity to the municipal reservoir have conservation value and their habitat must not be compromised. Alien clearing and appropriate fire regimes are important which must not be deviated from once the development is occupied. Controlled access to the area only that may not be fenced and the existing gravel road must not be tarred.
Visual	Ridgeline development must be managed with height restriction (two storey height restriction) and mitigated with appropriate stepping of structures, architectural guidelines and appropriate landscaping given that high rise structures are proposed along the ridgeline albeit behind municipal infrastructure. Landscape character must take into account necessary visual guideline and protocols.

11 ASSESSMENT METHODOLOGY

As per the approved Plan of Study for Impact Assessment, all identified impacts need to be assessed – the **direct, in-direct as well as cumulative impacts**. Impact criteria must include the following:

- **Nature of the impact:** impacts associated with the proposed residential development have been described in terms of whether they are **negative or positive** and to **what extent**.
- **Duration of impacts: Impact were assessed in terms of their anticipated duration:**
 - Short term (e.g. during the **construction phase**)
 - Medium term (e.g. during part or all of the **operational phase**)
 - Permanent (e.g. where the impact is for all intents and purposes **irreversible**)
 - Discontinuous or intermittent (e.g. where the impact may only occur during **specific climatic conditions** or during a **particular season** of the year)
- **Intensity or magnitude: The size of the impact (if positive) or its severity (if negative):**
 - **Low**, where the receiving environment (biophysical, social, economic, cultural etc) is negligibly affected or where the impact is so low that the remedial action is not required;
 - **Medium/Moderate**, where the receiving environment (biophysical, social, economic, cultural etc) is altered, but not severely affected, and the impact can be remedied successfully; and
 - **High**, where the receiving environment (biophysical, social, economic, cultural etc) would be substantially (i.e. to a very large degree) affected. If a negative

impact, could lead to irreplaceable loss of a resource and/or unacceptable consequences for human wellbeing.

- **Probability: Should describe the likelihood of the impact actually occurring indicated as:**
 - **Improbable**, where the possibility of the impact is very low either because of design or historic experience;
 - **Probable**, where there is a distinct possibility that the impact will occur;
 - **Highly probable**, where it is most likely that the impact will occur; or
 - **Definite**, where the impact will occur regardless of any prevention measures.
- **Significance: The significance of impacts can be determined through a synthesis of the assessment criteria. Significance can be described as:**
 - **Low**, where it would have negligible effect on the receiving environment (biophysical, social, economic, cultural etc), and on the decision;
 - **Medium/Moderate**, where it would have a moderate effect on the receiving environment (biophysical, social, economic, cultural etc), and should influence the decision;
 - **High**, where it would have, or there would be a high risk of, a large effect on the receiving environment (biophysical, social, economic, cultural etc). These impacts should have a major influence on the decision;
 - **Very high**, where it would have, or there would be a high risk of, an irreversible negative impact on the receiving environment (biophysical, social, economic, cultural etc) and irreplaceable loss of natural capital/resources or a major positive effect on human well-being. Impacts of very high significance should be a central factor in decision-making.
 - Provision must be made for with and without mitigation scenarios.
- **Confidence: The level of confidence in predicting the impact can be described as:**
 - **Low**, where there is little confidence in the prediction, due to inherent uncertainty about the likely response of the receiving ecosystem, or inadequate information;
 - **Medium/Moderate**, where there is a moderate level of confidence in the prediction, or
 - **High**, where the impact can be predicted with a high level of confidence
- **Consequence: What will happen if the impact occurs**
 - **Insignificant**, where the potential consequence of an identified impact will not cause detrimental impact to the receiving environment;
 - **Significant**, where the potential consequence of an identified impact will cause detrimental impact to the receiving environment.
 - Provision must be made for **with and without mitigation scenarios**.

The impacts must also be assessed in terms of the following aspects:

- **Status of the impact**

The specialist must determine whether the impacts are **negative, positive or neutral** (“cost – benefit” analysis). The impacts are to be assessed in terms of their effect on the project and the environment. For example, an impact that is positive for the proposed development may be negative for the environment. It is important that this distinction is made in the analysis.

- **Cumulative impact**

Consideration must be given to the extent of any accumulative impact that may occur due to the proposed development. Such impacts must be evaluated with an assessment of similar developments planned and already in the environment. Such impacts will be either **positive or negative, and will be graded as being of negligible, low, medium or high impact.**

Care must be taken to ensure that where cumulative impacts can occur, that these impacts are considered and categorised as **additive** (incremental or accumulative); **interactive, sequential or synergistic.**

Based on a synthesis of the information contained in the above-described procedure, the specialists are required to assess the potential impacts in terms of the following significance criteria:

- **No significance:** The impacts do not influence the proposed development and/or environment in any way.
- **Low significance:** The impacts will have a minor influence on the proposed development and/or environment. These impacts require some attention to modification of the project design where possible, or alternative mitigation.
- **Moderate significance:** The impacts will have a moderate influence on the proposed development and/or environment. The impact can be ameliorated by a modification in the project design or implementation of effective mitigation measures.
- **High significance:** The impacts will have a major influence on the proposed development and/or environment.

12 SUMMARY OF ASSESSMENT OF IMPACTS

The potential impacts of the proposed development were identified and assessed by various specialists in compliance with the Environmental Regulations and approved Plan of Study for EIR. Further details on the significance and ratings of these impacts are provided in the main report and in the attached specialist reports.

Various technical studies were conducted to consider the availability of services associated with the proposed development and these specialists were tasked to consult with the relevant local and provincial authorities on the availability of services (capacity and supply) as well as proposed infrastructure requirements.

Below table is a summary of the main conclusions of each specialist discipline only:

BOTANICAL	Confirmation that the development footprint is contained within the area deemed to have low botanical sensitivity which will result in an overall low botanical impact.
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	The preferred alternative is supported by the specialist.
BIODIVERSITY	Confirmation that the preferred development will result in overall low negative impacts with the preferred alternative allowing for improved ecological functioning through continuous invasive alien clearing, ecological burning, implementation of dedicated faunal gates linking to the neighbouring municipal conservation area, as well as protection of the butterfly reserve area. The preferred alternative is supported by the specialist.
FAUNA	Confirmation that the preferred development alternative will have an overall medium to low impact level and significance for specialist of special concern and faunal habitat. The preferred alternative is supported by the specialist.
FRESHWATER	With mitigation the specialist is of the opinion that the impacts associated with the proposed development is likely to pose a low negative risk to water sources and resources in the property and could in fact be considered under General Authorisation. The implementation of sewer infrastructure within the regulation area is the only reason for the WULA being undertaken. The preferred alternative is supported by the specialist subject to implementation of mitigation measures.
INTEGRATED HERITAGE (incl of Archaeology and Palaeontology)	The integrated heritage assessment satisfies the requirements of Section 38 of the National Heritage Resources Act. The specialist recommends that HWC endorses the proposed development.
VISUAL	The specialist deems the proposed development to have a medium negative impact on the receiving visual landscape. The preferred alternative is however acceptable with mitigation measures and can be considered for authorisation.
SOCIAL	The spectrum of socio-economic impacts associated with the proposed development range from medium positive to low negative. The specialist recommends that the development be approved with mitigation.
TRAFFIC	The development proposal is acceptable from a traffic perspective with allowances for both signalling and slip lane improvements as per the Louis Fourie Road Master Plan.
ELECTRICAL	The development can link to the existing 11kVA electrical line that traverses the site.
CIVIL	The development can be accommodated through the Municipal bulk services both in terms of network and capacity.

MAIN REPORT

1 INTRODUCTION

Cape EAPrac has been appointed by Hartenbos Hills PropCo (Pty) Ltd, hereafter referred to as the Applicant, as the independent environmental practitioner to facilitate the **Scoping & Environmental Impact Assessment (EIA)** process required in terms of the National Environmental Management Act (NEMA, Act 107 of 1998 as amended) for the proposed **Hartenbos Garden Estate** development on Erf 3122 situated in the Hartenbos Heuwels extension of Hartenbos (Mossel Bay Municipal District).

A previous EIA process conducted by a different specialist team and EAP also considered township development on the site. The outcome of the EIA resulted in a negative decision i.e. and the Applicant's appeal to have the negative decision overturned (ATKV at the time) was also refused. A copy of the Final EIR is attached as an appendix to this DEIR.

Despite the negative outcome of the previous EIA, the property was originally approved as Extension 4 of the existing Hartenbos Heuwels residential area and the site remains earmarked by the Mossel Bay Municipality for residential development (Mossel Bay Municipal Spatial Development Framework (SDF 2022), **the Applicant's** objective therefore remains to develop a residential estate with several amenities.

The proposed development requires the necessary **Environmental Authorisation (EA)** prior to commencement. The **Western Cape Department of Environmental Affairs and Development Planning (DEA&DP)** is the competent decision-making authority in this regard and a **Full Scoping & Impact Assessment** process must be followed.

To capture stakeholder engagement and provide a transparent public participation process, a **Pre-Application (Pre-App) Scoping Report** was made available to registered Interested and Affected Parties (I&APs) for a **30-day review and comment** period commencing on 22 January 2022 ending on 22 February 2022.

Following the outcome of the pre-application scoping process, the formal **Application Form** was submitted to the DEADP, followed by availability of this **Draft Scoping Report** to **registered** I&APs and thereafter submission of the **Final Scoping Report** to the Department for consideration. The DEADP accepted the Final Scoping Report on 17 November 2022. The conditions of this acceptance is inserted below:

ACCEPTANCE OF THE SCOPING REPORT AND PLAN OF STUDY FOR AN ENVIRONMENTAL IMPACT ASSESSMENT REPORTING ("EIR") PROCESS IN TERMS OF THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014 FOR THE PROPOSED HARTENBOS GARDEN ESTATE ON ERF 3122, HARTENBOS HEUWELS, MOSSEL BAY

1. The Scoping Report dated 5 October 2022, received by this Department on 5 October 2022, refers.
2. This letter serves to inform you that the abovementioned document in accordance with Regulation 22(a) of the Environmental Impact Assessment Regulation, 2014 has been accepted by the Department.
3. You are hereby advised to proceed with the tasks contemplated in the plan of study for environmental impact assessment and that the Environmental Impact Assessment ("EIA") Report must contain all information set out in Appendix 3 of GN No. R. 982 of 4 December 2014. Omission of any information may result in the application for Environmental Authorisation being refused.
4. An Environmental Management Programme ("EMPr") that contains all information set out in Appendix 4 of the EIA Regulations 2014 must be compiled that addresses the potential environmental impacts of the activity on the environment throughout the project life cycle, i.e., the EMPr must address impacts in respect of the planning and design, pre-construction and construction activities, operation of the activity, rehabilitation of the environment and closure/decommissioning (if applicable). The Department would like to advise that in compiling the EMPr the Department's Guideline for Environmental Management Programmes must be taken into account.
5. In addition to the above, the Environmental Assessment Practitioner ("EAP") must submit the draft EIA Report and EMPr to the Department for a 30-day comment period. The draft EIA Report and EMPr must also be made available to all relevant State Departments/Organs of State that administer laws relating to a matter affecting the environment, for a 30-day comment period. The EAP must notify the Department in writing of the date the draft EIA Report and EMPr was submitted to the relevant State Departments/Organs of State and clearly indicate whether or not such State Departments/Organs of State were notified of the 30-day comment period in terms of Section 24O of NEMA. It is imperative that State Departments/Organs of State are in possession of the draft Reports, whether it be digitally or in hard copy when the EAP issues them with the notice in terms of Section 24O of NEMA. Please note that the EAP is responsible for such consultation. Therefore, it is requested that the EAP include proof of such notification to the relevant State Departments/Organs of State in terms of Section 24O(2) and (3) of NEMA in the draft EIA Report, where appropriate.
6. The practitioner must record and respond to all comments received. The comments and responses must be captured in a Comments and Responses Report and must also include a description of the public participation process followed. This report must also be included in the public participation information to be attached to the EIA report submitted for a decision.
7. Please ensure that comments from all the relevant Organs of State, including any comments from the Department, are submitted with the EIA Report.
8. The Department awaits the submission of the EIA Report as prescribed by the EIA Regulations 2014. In accordance with Regulation 23(1) of GN No. R. 982 of 4 December 2014, the EIA Report and EMPr must be submitted to this Department for decision within a period of 106 days from the date of this letter. If however, significant changes have been made or significant new information has been added to the EIA Report, the applicant/EAP must notify the Department that an additional 50 days (i.e. 156 days from the date of the acceptance of the Scoping Report by the Department) would be required for the submission of the EIA Report. The additional 50 days must include a minimum 30-day commenting period to allow registered I&APs to comment on the revised report and/or additional information.
9. If the EIA Report and EMPr are not submitted within the prescribed timeframe, the application will lapse in terms of Regulation 45 of Government Notice Regulation No. 982 of 4 December 2014 and your file will be closed. Should you wish to pursue the application again, a new application process would have to be initiated. A new Application Form would have to be submitted and the prescribed application fee would have to be paid again.
10. Please note that digital documents may be submitted to the Department for decision. However, this Department may request hard copies of the report to be submitted.

11. Kindly quote the abovementioned reference number in any future correspondence in respect of the application.
12. Please note that the activity may not commence prior to an Environmental Authorisation being granted by the Department. It is an offence in terms of Section 49A of the NEMA for a person to commence with a listed activity unless the Department has granted an environmental authorisation for the undertaking of the activity.
13. This Department reserves the right to revise or withdraw comments or request further information from you based on any information that might be received.

The steps to be followed from now onwards include:

- Written notifications send to all registered I&APs on Friday, 20 January 2023 informing of the availability of the DEIR and opportunity to comment from Monday, 23 January 2023;
- 30-day commenting period extending from 23 January – 22 February 2023;
- Consider, respond to and including all comments received during abovementioned DEIR and include them in the Final EIR;
- Submit the Final EIR to DEA&DP for decision-making (grant or refuse authorisation).

1.1 **PUBLIC PARTICIPATION Process**

The Public Participation Process (PPP) timeframes in terms of the 2014 EIA Regulations are constrained and does not necessarily allow for thorough consultation. A pre-application public participation was therefore conducted in order to provide the public with ample opportunity to review project information and provide comment/input. The Pre-App phase included the distribution of the **Pre-App Scoping Report** to potential and registered Interested and Affected Parties (I&APs) for review and comment. The following also formed part of the Pre-App PPP:

- Placing and advert in the *Mossel Bay Advertising* calling for I&AP registrations and informing the public of the availability of the pre-application Scoping Report and where it can be viewed;
- Making the pre-application Scoping Report available on the *Cape EAPrac* website;
- Putting up site notices at the entrance to the site informing the public of the process and proposed development;
- A stakeholder register was opened and will be maintained throughout the application.

Comments and submissions received during the pre-application scoping phase were captured and reflected in both the Draft as well as the Final Scoping Reports.

All reports have been made available for a minimum commenting period of **30-days** as allowed for in the Environmental Regulations with the Draft Scoping Report available for a period of **60-days** to align with the requirements of the National Water Act for instances where a Water Use License Application (WULA) is required.

The Draft Impact Report is circulated for a 30-day commenting period extending **from Monday, 23 January – 22 February 2023**.

NOTE: The Protection of Personal Information Act (POPIA) will be adhered to in terms of this scoping & impact assessment process. I&APs that register and/or that submit comment in response to any of the reports or that attend meetings as part of the public engagement, is alerted to the fact that it is a transparent process and submissions and details of those

participating will be captured and reflected in the stakeholder register that must be submitted to the competent authority. An IA&P cannot be registered for the process without supplying their contact details, or without their comments being incorporated and reflected in the public domain.

Comments received in response to this DEIR will be considered by the project team and must be reflected in the Final Environmental Impact Report (FEIR) that must be submitted to the Competent Authority for consideration and decision-making.

2 GENERAL DESCRIPTION OF THE SITE AND CONTEXT

The property is currently owned by the Afrikaanse Taal & Kultuur Vereniging (ATKV), but is in the process of being transferred to the Applicant who is duly authorised to conduct the Scoping & Impact Assessment application process in the meantime.

Erf 3122 is a remaining, undeveloped portion of the original Hartenbos Township Development and represents (Township Extension 4 as per approved General Plan). As such the property falls within the urban edge of Hartenbos and continues to be designated for residential development by the Mossel Bay Municipality.

The municipal Hartenboskop reservoir is situated in the northern most corner of the site where a second reservoir is proposed as part of this application. Existing service servitudes (electrical and water) cross the property and a number of tracks criss-cross the site.

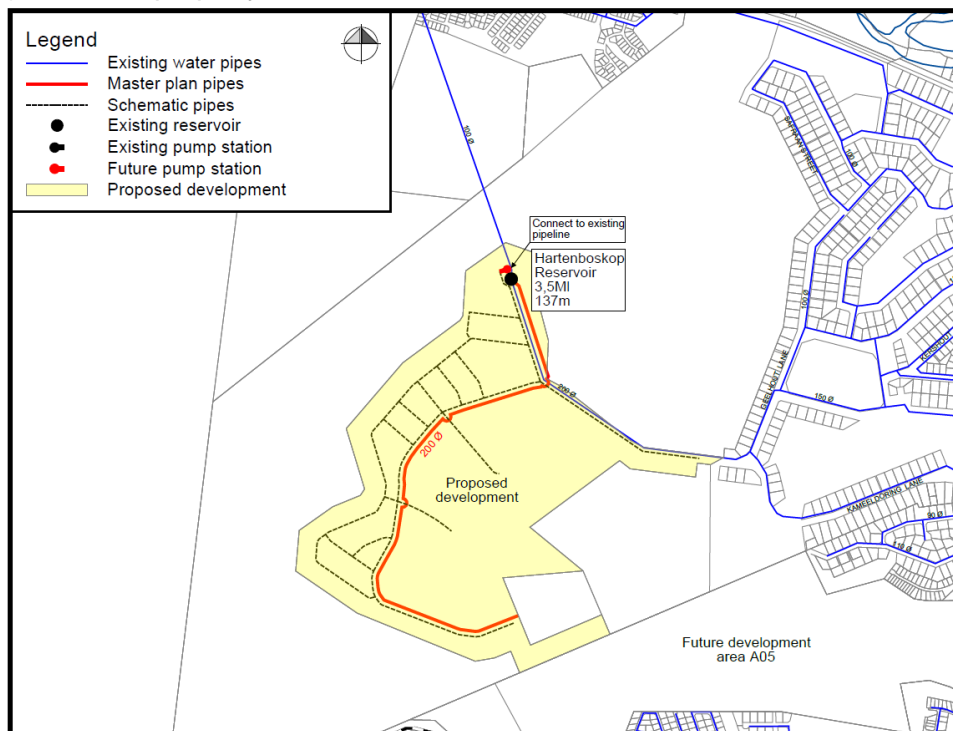


Figure 8: Municipal master planning for existing services crossing Erf 3122 from 2017 shows as blue and dotted line (Source: GLS 2021).

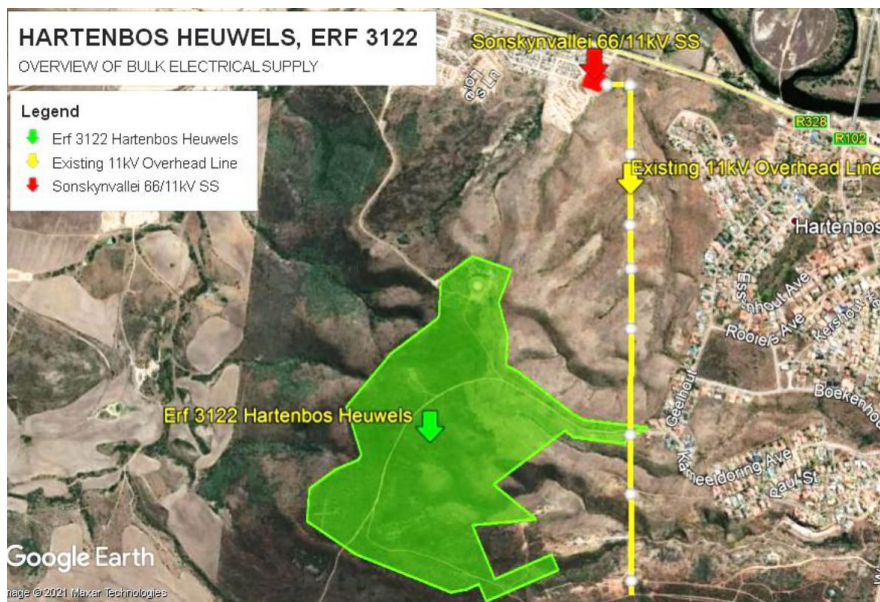


Figure 9: Electrical services indicating existing 11kV overhead line crossing Erf 3122 close to the main entrance (Source: BuroTech Electrical Engineers 2022).

The main vehicle access to the site has a gate to prevent unauthorised access, however it is noted from trails that people still access on foot (by-pass the gate) and unregulated vehicle access points are also noted from within Hartenbos Heuwels which results in unfortunate illegal dumping, as well as erosion where informal trails and tracks are made/used without permission from the owners/applicant.

The subject property is situated west of the N2 freeway approximately 2,5km from the original Hartenbos Town which developed between Louis Fourie Road and the Indian Ocean. The site is bounded by the existing Hartenbos Heuwels residential neighbourhood to the east, municipal conservation area to the west, south and north. The Aalwyndal small holdings are located further to the south, while medium density housing complexes are located to the southeast and the Sonskyn Valley township area and mining activities further to the northwest. The municipal Conservation Area lies to the north-west of the property.

There are multiple formal access routes to the subject property. One is taken directly from Kemeeldoring Avenue which links with Louis Fourie Road (R102) via Boekenhout Avenue. Louis Fourie Road (R102) is the main transportation route linking Mossel Bay to the south with Hartenbos and environments to the north. An alternative access to the subject property is taken via Geelhout Avenue and Waboom Street which end at the R102 and R328 intersection. The R328 is an extension of Louis Fourie Road which connects Hartenbos with Oudtshoorn via the Robinson Pass.

The property is zoned Agriculture I and was historically used for limited agricultural purposes due to lack of agricultural resources. No agricultural activities have been exercised on the property for at least the last twenty (20) years. Soil condition as well as climatic conditions in the area, along with lack of ecological burning have played a role in the reduced capacity of vegetation restoration and recovery over this extended period of time leaving approximately half of the property to be less sensitive than the slopes and lower lying areas that are deemed more sensitive.

As part of the environmental process specialists have been appointed to determine the sensitivity levels of the vegetation/habitat/ecosystems. These specialists covered the entire environmental spectrum and the relevant specialist impact assessments are reflected in this report. The primary purpose of the original specialist scoping exercise was to evaluate the site sensitivities/suitabilities/characteristics in order to identify a portion of the subject property suitable for development with acceptable levels of impact(s). The findings and recommendations of the scoping specialist investigations resulted in the identification of a portion of the subject property for potential development, which is primarily the central plateau and southern portion and represents +/-40% of the subject property. The remainder of the property which represents the undulating eastern portion, comprising the existing valleys and slopes have been identified as significant and conservation worthy and was therefore excluded from the provisional development area as it contains valley bottom wetlands, drainage lines that facilitate faunal movement and a greater diversity of plant species.

The development proposal which forms part of this application acknowledges the majority of "boundaries" set by the specialist investigations collectively. The individual specialist impact assessments took into account the previous specialist studies undertaken as part of the 2016 EIA process to identify/consider relevant changes in the site conditions/legislative framework and character of the area.

3 PROPOSED DEVELOPMENT & ALTERNATIVES

The development is planned as a four (4) phase proposal. The following portions form part of the proposal. The preferred site development plan is depicted in the next figure and a larger version is also attached to this report as an Appendix.

- Alternative 2 was informed by overlaying all of the specialist constraints analysis layers to create a 'developable area' to help guide a footprint with acceptable impact levels/significance of impacts, as well as through input from stakeholders and authorities in response to the Draft Scoping Report.
- The preferred Alternative 3 was detailed even more to reduce potential impacts within the acceptable 'development area' and to better accommodate viable faunal movement to link the internal conservation area with the external natural areas.



Figure 10: Preferred scoping alternative (Revision 11, August 2022).

The main differences between Alternative 2 (scoping level) and Alternative 3 (preferred alternative) can be seen in below sketch:

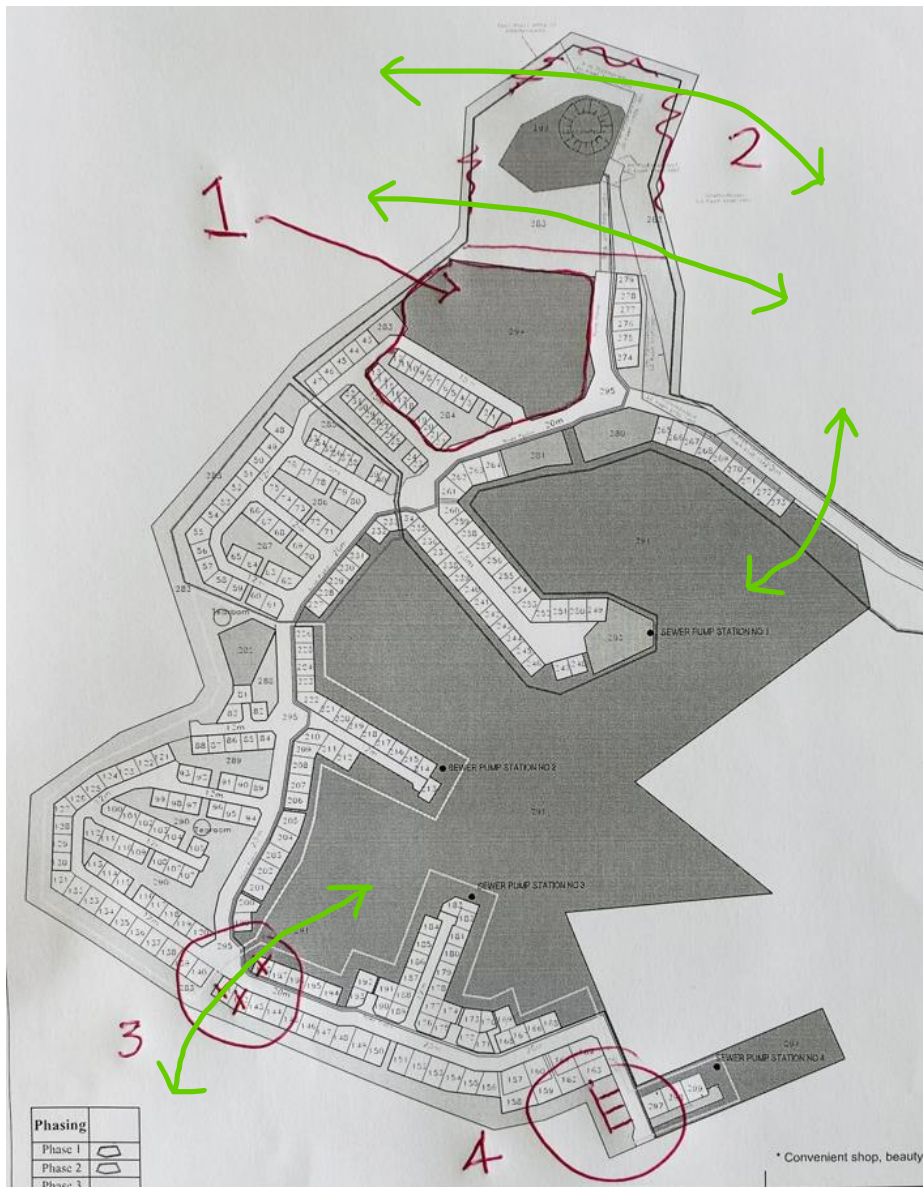


Figure 11: Simplified sketch to indicate the main differences between Alternative 2 & 3.

<p>Change #1</p>	<p>Village Precinct was smaller compared to the final Alternative 3 version because with Alternative 2 it was still all three (3) storey structures. The height for the Village Precinct has now been restricted to two (2) storey structures only. To compensate for the loss of unit, the Village Precinct has been increased in size covering a slightly larger area with Alternative 3 compared to Alternative 2.</p>
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	 <p>Figure 12: Village precinct Alternative 2 (smaller site and three storey buildings).</p>	 <p>Figure 13: Village precinct Alternative 3 slightly larger and only two storey buildings.</p>	
<p>Change #2</p>	<p>The external property boundary extended along the property boundary including the municipal services and butterfly reserve as part of the Estate in Alternative 2. To improve corridor functioning and linkages the butterfly reserve and municipal service site is excluded from the Estate fence in Alternative 3.</p>		
<p>Change #3</p>	<p>This is a twofold change both its layout, as well as operational with the operational change being to install gates in the fence near the main entrance as well as at the traffic circle along the southern boundary. These faunal gates will be open during the day and closed at night only. The purpose of these gates will be to allow faunal movement between the internal conservation area and the surrounding municipal conservation area. Furthermore the fence will be fitted with measures allowing animal movement through the fence at all times including when the faunal gates are closed at night.</p> 		



Figure 14: No corridor with Alternative 2.

Figure 15: Widened corridor by removal of three erven in Alternative 3.

Change #4

To compensate for the loss of 3 erven at the bottom traffic circle to create a wider corridor the erven are repositioned.



Figure 16: Internal private open space with Alternative 2.



Figure 17: Optimising of internal open space with 3 erven removed under Change #3 to create faunal corridor in Alternative 3.

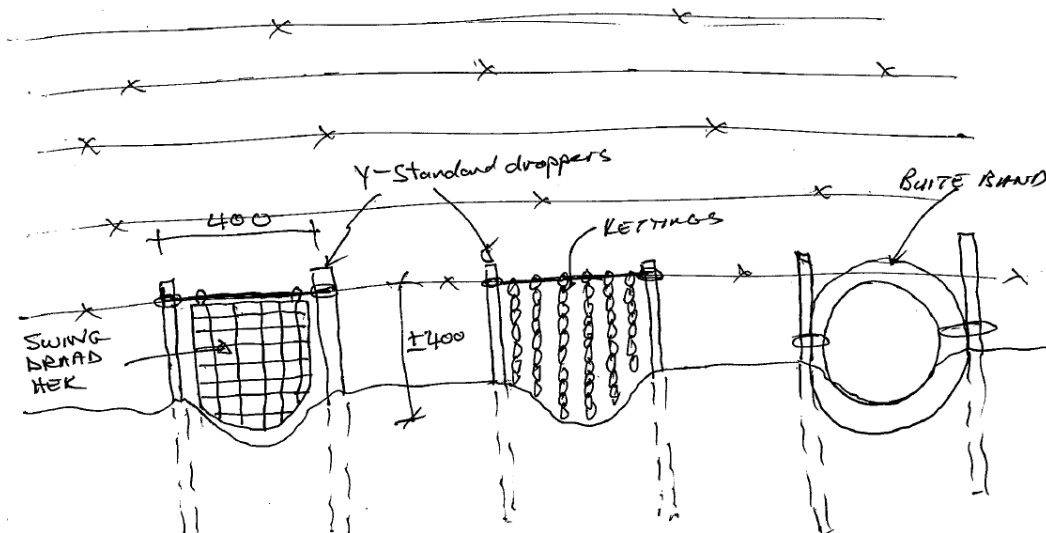









Figure 18: Image of the designs in the Estate fence to improve faunal movement between the internal and surrounding conservation areas.






The following table provides a comparison of the scoping Alternative 2 and the preferred Alternative 3 broken into development categories. It is noted that the development envelop that aligns with the specialist constraints, has not been affected by the internal and aesthetic amendments:



ALTERNATIVE 2 (SCOPING ALTERNATIVE)	ALTERNATIVE 3 (PREFERRED ALTERNATIVE)	
<p>1.1 PORTIONS 1-279:</p>	<p>1.1 PORTIONS 1-258:</p>	
<p>The proposed residential component of the development which will be zoned Single Residential Zone I (SRZI) is in extent the largest urban land use within the development. A total of +/-280 single residential erven are proposed as part of the development on erven varying in size from 200m² to 747m² in extent.</p>	<p>The proposed residential component of the development which will be zoned Single Residential Zone I (SRZI) is in extent the largest urban land use within the development. A total of +/-258 single residential erven are proposed as part of the development on erven varying in size from 200m² to 747m² in extent.</p>	<p>-22 </p>
<p>These residential erven include a combination of:</p>	<p>These residential erven include a combination of:</p>	
<ul style="list-style-type: none"> · 40 Garden Houses (200m² erven), 	<ul style="list-style-type: none"> · 18 Garden Houses (200m² erven), excludes Portions 274-277 as part of village precinct 	<p>-22 </p>
<ul style="list-style-type: none"> · 122 smaller residential erven (<350m²) and 	<ul style="list-style-type: none"> · 112 smaller residential erven (<350m²) and 	<p></p>
<ul style="list-style-type: none"> · 117 larger residential erven (350m²->600m²). 	<ul style="list-style-type: none"> · 149 larger residential erven (350m²->600m²). 	<p>32 </p>
<p>In order to facilitate the proposed single residential component on Portions 1-279, these portions must be rezoned to Single Residential Zone I (SRZI) with dwelling unit as a primary land use.</p>	<p>In order to facilitate the proposed single residential component on Portions 1-258, these portions must be rezoned to Single Residential Zone I (SRZI) with dwelling unit as a primary land use.</p>	
<p>1.1 PORTIONS 280-282:</p>	<p>1.1 PORTIONS 259-261:</p>	
<p>Portions 280, 281 & 282 represent the proposed Terrace Apartments (flats) which measures collectively 8 394m² in extent and which will be zoned General Residential Zone III (GRZIII).</p>	<p>These portions represent the proposed Terrace Apartments (flats) which measures collectively 8 394m² in extent and which will be zoned General Residential Zone III (GRZIII).</p>	<p></p>
<p>A total of +/-54 apartments (3x18) varying from 1 bedroom to 3 bedrooms are proposed on the individual portions as part of the proposed development on the subject property. These three portions will be developed in phases 2, 3 and 4 respectively.</p>	<p>A total of +/-54 apartments (3x18) varying from 1 bedroom to 3 bedrooms are proposed on the individual portions as part of the proposed development on the subject property. These three portions will be developed in phases 2, 3 and 4 respectively.</p>	<p></p>

In order to facilitate the proposed terrace apartments (flats) on the proposed portions, Portions 280, 281 & 282 will have to be rezoned to General Residential Zone III (GRZIII).	In order to facilitate the proposed terrace apartments (flats) on the proposed portions, the portions will have to be rezoned to General Residential Zone III (GRZIII).	
1.1 <u>PORTION 283-290 (FUNCTIONAL PRIVATE open space areas – green):</u>	1.1 <u>PORTION 262-269 (FUNCTIONAL PRIVATE open space areas – green):</u>	
1.1 <u>PORTION 291 (nature CONSERVATION AREAS – GREEN):</u>	1.1 <u>PORTION 270 (nature CONSERVATION AREAS – GREEN):</u>	
1.1 <u>PORTION 292:</u>	1.1 <u>PORTION 271:</u>	
The intention is to utilize Portion 292 for communal facilities which comprise, but is not limited to, a restaurant and sport and recreation centre with parking and will be zoned Private Open Space Zone II (OSZII) with Consent Use	The intention is to utilize Portion 271 for communal facilities which comprise, but is not limited to, a restaurant and sport and recreation centre with parking and will be zoned Private Open Space Zone II (OSZII) with Consent Use	
1.1 <u>PORTION 293:</u>	1.1 <u>PORTION 293: No longer a separate erf, maintenance shed included into the village precinct</u>	
Portion 293 will have to be rezoned to Open Space Zone II (OSZII) with the primary land use.		
1.1 <u>PORTION 294:</u>	1.1 <u>PORTIONS 272-277</u>	
This portion which will be zoned General Residential Zone III (GRZIII) with Consent Use as ‘Retirement Resort’ represents a variety of land uses measures ±2,43 ha in extent and comprises the main focal point of the proposed development with the communal amenities and specialized services .	This portion which will be zoned General Residential Zone III (GRZIII) with Consent Use as ‘Retirement Resort’ represents a variety of land uses measures ±3,267 ha in extent and comprises the main focal point of the proposed development with the communal amenities and specialized services .	
The precinct will include the following:	The precinct will include the following:	
· Clubhouse	· Clubhouse	
· Recreation Centre	· Recreation Centre	
· Village Apartments	· Village Apartments	
· Health Care	· Health Care	
· Clubhouse	· Clubhouse	
· Approximately 248 parking bays (basement and ground floor level)	· Approximately 230 parking bays (basement and ground floor level)	-18
<u>Ground floor:</u>	<u>Ground floor:</u>	

Ø Entrance foyer and courtyard	Ø Entrance foyer and courtyard	
Ø Homeowners Association / Managing Agent offices	Ø Homeowners Association / Managing Agent offices	
Ø Sales Office	Ø Sales Office	
Ø Restaurant	Ø Restaurant	
Ø Kitchen	Ø Kitchen	
Ø Lounge & Game Room	Ø Lounge & Game Room	
Ø Library	Ø Library	
Ø Convenient store	Ø Convenient store	
Ø Hair and nail salon	Ø Hair and nail salon	=
Ø Cinema room	Ø Cinema room	
Ø Slop Room	Ø Slop Room	
Ø Outside braai area	Ø Outside braai area	
Ø Public toilets	Ø Public toilets	
Ø Nurse's room	Ø Nurse's room	
<u>First and second floor:</u>	<u>First floor</u>	
Provision is made on the first and second floor of the club house building for a total of approximately 54 one bedroom assisted living and comprehensive care centre units respectively. These single rooms will vary in size from 28m ² to 45m ² .	Provision is made on the first floor of the buildings for a total of approximately 20 one bedroom assisted living and comprehensive care centre units respectively. These single rooms will vary in size from 28m ² to 45m ² .	 -34
<u>Recreation Centre:</u>	<u>Recreation Centre:</u>	

<p>Provision is made in a separate building behind the clubhouse building for indoor gym with rehabilitation facilities and pool area as well as a multifunctional hall. The proposed building also includes ablution facilities and storerooms and measure $\pm 440\text{m}^2$ in extent. The indoor sports facilities include but not limited to a gymnasium, aerobic area, indoor pool and other associated facilities, while the multifunctional hall will be a communal facility which can be used for any purpose from social gatherings, church services and dances. The proposed building will lead out onto an outdoor recreation area which will be landscaped and will function as a central courtyard on the site and which is earmarked for outside play and recreation purposes.</p>	<p>Provision is made in a separate building behind the clubhouse building for indoor gym with rehabilitation facilities and pool area as well as a multifunctional hall. The proposed building also includes ablution facilities and storerooms and measure $\pm 440\text{m}^2$ in extent. The indoor sports facilities include but not limited to a gymnasium, aerobic area, indoor pool and other associated facilities, while the multifunctional hall will be a communal facility which can be used for any purpose from social gatherings, church services and dances. The proposed building will lead out onto an outdoor recreation area which will be landscaped and will function as a central courtyard on the site and which is earmarked for outside play and recreation purposes.</p>	
<p><u>Village Apartments:</u></p>	<p><u>Village Apartments:</u></p>	
<p>The proposed village apartments comprise five (5) three (3) storey (ground floor, plus first and second floor) buildings grouped around the central courtyard (outside recreation area) within the Village Precinct.</p>	<p>The proposed village apartments comprise eight (8) double storey (ground floor, plus first floor) buildings grouped around the central courtyard (outside recreation area) within the Village Precinct and on the abutting Portions 273-277).</p>	
<p>An estimated 144 village apartment units are proposed within these buildings on the proposed Portion and comprise a combination of bachelors, 1 and 2 bedroom units which will vary in size from $\pm 40\text{m}^2$ to $\pm 90\text{m}^2$. Apart from the bedrooms provision is also made for a bathroom and open plan kitchen and lounge area as well as balconies. The required parking bays for the proposed apartments are provided for in the proposed basements of each of the buildings as well as on ground level within the Village Precinct. These parking areas have direct access from the proposed internal private road network. These apartment buildings are all linked with each other as well as with the communal and health care facilities within the Village Precinct by formal walkways. These apartments will provide an alternative residential option for those who require smaller units in close proximity to the communal and health care facilities within the development.</p>	<p>An estimated 152 village apartment units are proposed within these buildings on the proposed Portions and comprise a combination of 1, 2 and 3 bedroom units which will vary in size from $\pm 40\text{m}^2$ to $\pm 100\text{m}^2$. Apart from the bedrooms provision is also made for a bathroom and open plan kitchen and lounge area as well as balconies. The required parking bays for the proposed apartments are provided for in the proposed basements of each of the buildings as well as on ground level within the Village Precinct. These parking areas have direct access from the proposed internal private road network. These apartment buildings are all linked with each other as well as with the communal and health care facilities within the Village Precinct by formal walkways. These apartments will provide an alternative residential option for those who require smaller units in close proximity to the communal and health care facilities within the development.</p>	 8
<p><u>Health Care:</u></p>	<p><u>Health Care:</u></p>	

<p>Although this development will not be an exclusive retirement development, provision is made in the development for specialized facilities normally associated with retirement resort. The proposed health care units and comprehensive care units will accommodate those members of the public who needs health care on a continuous basis within an area where they can be monitored and cared for.</p>	<p>Although this development will not be an exclusive retirement development, provision is made in the development for specialized facilities normally associated with retirement resort. The proposed health care units and comprehensive care units will accommodate those members of the public who needs health care on a continuous basis within an area where they can be monitored and cared for.</p>	
<p>Approximately 34 comprehensive care units are proposed inside a three (3) storey (ground floor, plus first and second floor) health care centre building on the Village Precinct.</p>	<p>Approximately 26 comprehensive care units are proposed inside a two (2) storey (ground floor, plus first floor) health care centre building on the Village Precinct.</p>	<p>-8</p> 
<p>This building will be located immediately north of the proposed clubhouse and will be linked thereto with covered walkways. The proposed health care apartments which are proposed on all three floors comprise a bedroom and a bathroom. These rooms will be accessed from a covered walkway which leads to the staircase and lift shaft. This building will function exclusively as a health care facility and will provide a accessible service to residents of the development.</p>	<p>This building will be located immediately north of the proposed clubhouse and will be linked thereto with covered walkways. The proposed health care apartments which are proposed on all three floors comprise a bedroom and a bathroom. These rooms will be accessed from a covered walkway which leads to the staircase and lift shaft. This building will function exclusively as a health care facility and will provide a accessible service to residents of the development.</p>	
<p>In addition to the comprehensive care apartments the health care building will also make provision for other facilities directly associated with such care which include but not limited to the following:</p>	<p>In addition to the comprehensive care apartments the health care building will also make provision for other facilities directly associated with such care which include but not limited to the following:</p>	
<p>Ø Reception,</p>	<p>Ø Reception,</p>	
<p>Ø Communal dining and lounge area in the proposed courtyard,</p>	<p>Ø Communal dining and lounge area in the proposed courtyard,</p>	
<p>Ø Doctor’s rooms,</p>	<p>Ø Doctor’s rooms,</p>	
<p>Ø Consulting rooms,</p>	<p>Ø Consulting rooms,</p>	
<p>Ø Nurse’s room,</p>	<p>Ø Nurse’s room,</p>	
<p>Ø Private gardens,</p>	<p>Ø Private gardens,</p>	
<p>Ø Satellite kitchen,</p>	<p>Ø Satellite kitchen,</p>	
<p>Ø Public toilets,</p>	<p>Ø Public toilets,</p>	
<p>Ø Slop room,</p>	<p>Ø Slop room,</p>	

<p>Ø Staff room, and</p>	<p>Ø Staff room, and</p>	
<p>Administrative office.</p>	<p>Administrative office.</p>	
<p>In addition, +/- 20 one bedroom assisted living units which will function collectively with the health care centre are proposed on the first and second floor of the proposed clubhouse building. These units with associated storage areas will be linked with the abutting health care building and facility immediately to the north thereof with covered walkways on all three levels as clearly depicted on the attached plans.</p>	<p>In addition, +/- 20 one bedroom assisted living units which will function collectively with the health care centre are proposed on the first floor of the proposed clubhouse building. These units with associated storage areas will be linked with the abutting health care building and facility immediately to the north thereof with covered walkways on all three levels as clearly depicted on the attached plans.</p>	
<p>In order to facilitate this land use, Portion 294 will have to be rezoned to General Residential Zone III (GRZIII) with the primary and Consent Uses.</p>	<p>In order to facilitate this land use, Portions 272-277 will have to be rezoned to General Residential Zone III (GRZIII) with the primary and Consent Uses.</p>	

3.1 SERVICES AND ACCESS

Due to the number of residential opportunities remaining within the original (Alternative 2) capacity and demand. The engineering services and traffic services as assessed are deemed sufficient to accommodate that of Alternative 3 without exceeding the assessed volumes.

Civil and Electrical services reports were compiled for the purpose of this application. In addition, focus was put on a detailed stormwater management plan (discharge into watercourses required attention from a freshwater perspective) and also a traffic investigation to consider access.

Please refer to the appendices for copies of the civil, electrical, stormwater management plan and the traffic assessment.

3.1.1 Traffic

It was agreed by the **Engineers with the Mossel Bay Municipality** that the study area for traffic and accessibility should include the following intersections:

- Waboom Street and R328 (Route to N2 and Oudtshoorn)
- Boekenhout Avenue and Kameeldoring Avenue
- Kameeldoring Avenue and Geelhout Avenue
- Boekenhout Avenue and Louis Fourie Road

It was further agreed by the Engineers with the Municipality that, in view of the reduction in vehicle travel due to the Covid-19 pandemic, historic traffic counts should be used rather than to undertake traffic counts under current depressed traffic conditions. No counts were available at the junction of Kameeldoring Avenue and Geelhout Avenue and specific traffic counts were undertaken during the AM and PM peak hours during May 2021. This is the intersection of two minor local residential access streets and as expected, traffic counts were insignificant.

Based on the outcome of the traffic assessment for this application and considering known recommendations associated with other approved developments, the following recommendations are supported to ensure that additional traffic does not result in deteriorating conditions along roads and at intersections:

- A 60m exclusive left turn lane with 60m taper on the southern approach of Louis Fourie Road at the intersection of **Louis Fourie Road and Boekenhout Avenue**. This left turn lane serves both **Erf 3122 and the recently approved Renosterbos development** currently under construction.
- Installation of **traffic signals** and the provision of an **exclusive right turn lane** on **Waboom Street** at the intersection of **Waboom Street, Louis Fourie Road, the R328 to Oudtshoorn and the R102 to Groot Brak**. This improvement was already recommended by ITS in **2018 in the TIA for the Outeniquasbosch development**.

In response to queries raised during the public participation (scoping) phase, particularly about construction traffic, the following additional information was supplied by the traffic engineer:

- The most traffic will be generated during the period when the access and internal roads are constructed. Assuming that 20m³ trucks are used, approximately 650 trips for road material, approximately 20 trips for large stormwater pipes and electrical infrastructure, with a further eight (8) trips for smaller infrastructure such as water and sewage pipes. Smaller vehicles such as bakkies will be utilised for smaller loads/transport of workers/material. It must be noted that these figures are dependent on the size trucks used by contractors.
- It must be further noted that these trip amounts are calculated for the entire development, but implementation will happen in four (4) phases over an extended period of time which implies that actual traffic volumes during construction will be moderate.
- Both Boekenhout and Kameeldoring Avenue are Class 4 collector roads. Their geometry is sufficient and will not create additional problems when needing to handle construction traffic.
- The most optimal route to handle construction traffic is via Boekenhout, Geelhout and then onto Kameeldoring Avenue for a short distance.



- It is mandatory for the contractors responsible for bulk services to confirm the condition of the roads that will be used during the construction period and to ensure that the general condition is maintained throughout and post-construction.
- Where necessary, traffic control measures must be enforced to prevent unnecessary congestion during any period of construction that may result in heavier traffic flow.

3.1.2 Residential and Commercial Water Demands and Supply

The full development water demand will not exceed **325kl/day** (inclusive of firefighting requirements). Consultation between the appointed civil engineer and the Municipality has confirmed that sufficient water supply is available for this development. It will be a requirement of the environmental process for the Municipality to re-confirm this in writing so as to avoid putting unnecessary pressure on existing users/systems.

Water saving measures must include **low flow shower heads, dual flush toilets, rainwater storage tanks** for all buildings at ground floor level.

A bulk service report was compiled by GLS Consulting Engineers (2021) to inform the Civil Engineering report. The report indicates that Hartenboskop reservoir has **sufficient capacity**. For the development a booster pump station must be constructed that will supply the water reticulation of the proposed development. Allowance is however made for sufficient space to develop a future 1200kl reservoir next to the existing Municipal reservoir.

Furthermore, an existing new 160 diameter 200 meter long pipe is to be installed at the existing Hartenbos pump station – this cost will be for the developers. A new 200 diameter gravity line must be installed from the Hartenboskop reservoir within the road reserve of the new development.

3.1.3 Sewage

The average daily supply of sewage from the proposed development at full development capacity will not exceed **270kl/day**. Consultation between the civil engineer and the Mossel Bay Municipality has confirmed that sufficient bulk sewage capacity existing to accommodate the proposed development.

Several sewage pump stations are positioned at low points throughout the development. Due to the inherent risk of power failures or load shedding that cause pump stations to fail, the position of these pump stations, as well as risk management measures to prevent potential pollution from sewage spills, have been workshopped between the civil engineer and aquatic specialist who presents on the **low risk of water resource contamination**.

3.1.4 Stormwater

It is a recommendation of this EIA that the stormwater system as indicated on the stormwater management plan, be constructed. It is acknowledged that detail design must still be done to determine pipe size, kerb inlet lengths and detention structure sizes. It is recommended that detention structures are constructed with Gabions and with geo-fabric as proposed in the stormwater management plan.

The provisional stormwater plan has been designed with input from the freshwater specialist and assessed as such in terms of the Water Use License Application and Aquatic Impact Assessment.

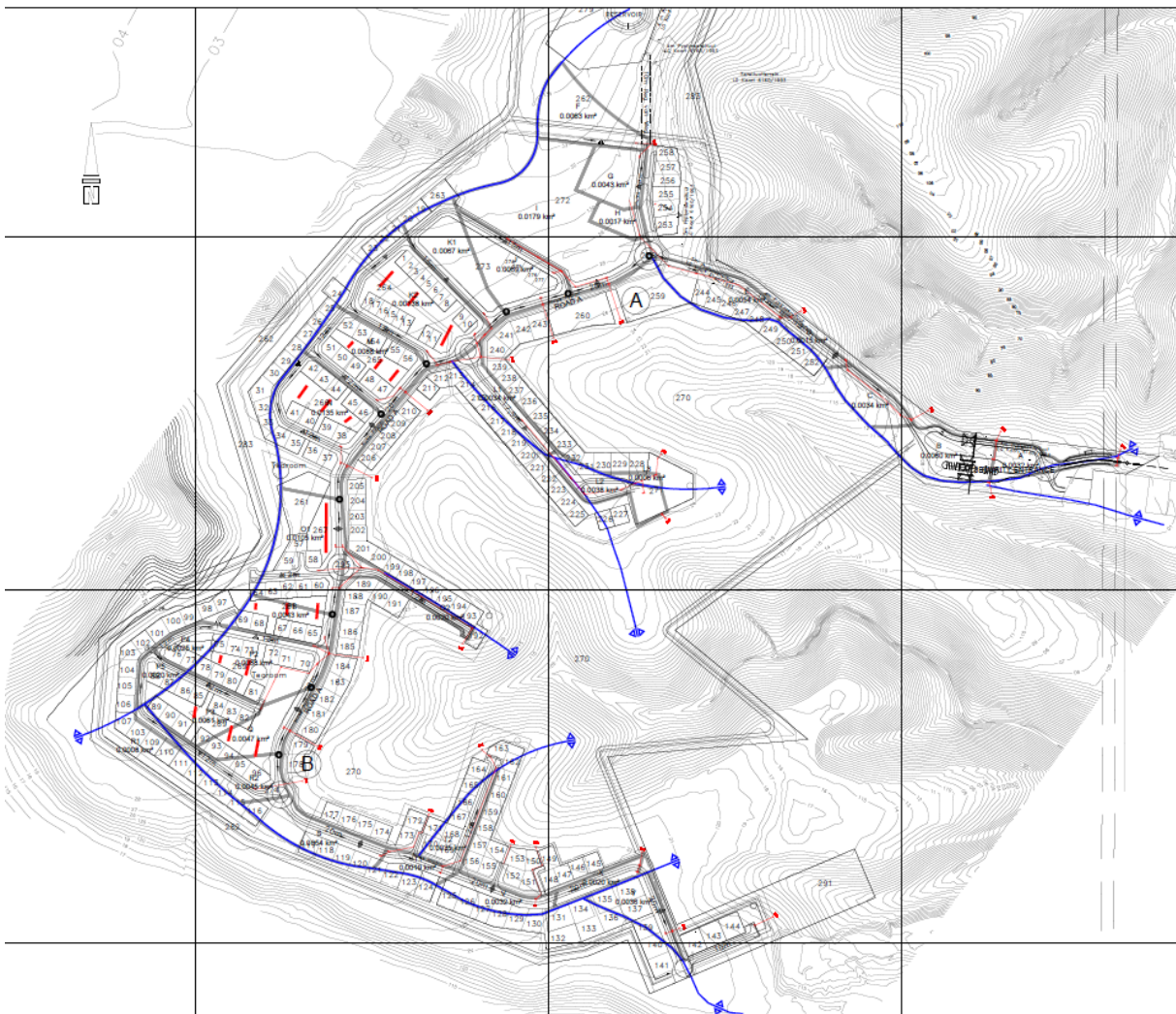


Figure 19: Provisional stormwater layout plan assessed as Alternative 3.

Rainwater harvesting tanks must be installed at single residential erven and the rainwater harvested used for irrigation of green areas / private open space areas to reduce concentration of stormwater. Furthermore flow retention channels must be constructed within the conservation area as indicated on the plan to distribute stormwater discharge.

The Stormwater Plan must be implemented to ensure that the stormwater system function over the long term and does not compromise the lower lying wetlands and habitats.

3.1.5 Solid Waste Management

A central solid waste collection facility will be provided at the entrance of the development. The body corporate/homeowners association will be responsible to collect waste from the estate on a regular basis and such household waste will temporarily be kept in the enclosed waste holding site for when the Municipality collects solid waste in the Hartenbos Heuwels area.

It is recommended that at-source waste separation be encouraged by the Body Corporate/Homeowners Association so that recyclable materials will be kept separate from organic/non-recyclable materials i.e. implement blue-green-black bag system.

3.2 ELECTRICAL ENGINEERING SERVICES

According to the surveys conducted on site by the appointed electrical engineers, the Local Municipality **have available electricity infrastructure** in the area and will be the authorised supplier of bulk electricity to the proposed development. This was confirmed in writing by the Mossel Bay Local Municipality, Electricity Department to the engineers and will be required again as part of this environmental process.

The new development will be supplied from the existing 11kV overhead line adjacent to the eastern perimeter of the development, in the vicinity of the proposed main entrance gate. The development will be supplied with a bulk electrical connection from this overhead line.

The Notified Maximum Demand (NMD) of the development as per estimated load is **2,089 kVA** and was calculated as per/according to the supply authority's prescriptions.

Alternative energy sources such as **Heat Pumps, Solar Water Heating and Gas Systems** will be implemented for **water heating and cooking purposes** as resource conservation measures, but also to deal with load shedding.

Given the proximity to the neighbouring municipal conservation area, low-level lighting systems will be implemented for the streets and public areas, to reduce lighting pollution.

Considering the health care requirements, a 200kVA emergency/back-up generator will be supplied for the care facilities to ensure uninterrupted service even during load shedding.

Heat pumps is the preferred method for water heating as it uses a third of conventional heating energy i.e. normal geysers. **Household roof solar heating** is also recommended to further reduce energy demand. It is furthermore recommended that **gas** be considered for cooking in single residential units, however given the weight of gas bottles it is not feasible for facilities where elderly people may reside to instal such bottle systems.

4 LEGISLATIVE AND POLICY FRAMEWORK

The legislation that is relevant to this study is briefly outlined below. These environmental requirements are not intended to be definitive or exhaustive, but serve to highlight key environmental legislation and responsibilities only.

4.1 THE CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA

The Constitution of the Republic of South Africa (Act 108 of 1996) states that everyone has a right to a non-threatening environment and that reasonable measure are applied to protect the environment. This includes preventing pollution and promoting conservation and environmentally sustainable development, while promoting justifiable social and economic development.

4.2 ENVIRONMENT CONSERVATION ACT, 1989 (ECA)

The **EIA** regulations contained in the Environmental Conservation Act (ECA) have been replaced by the NEMA, however the provisions included in this legislation are still applicable.

In particular, compliance with the draft regulations pertaining to noise as published in the province of Western Cape Provincial Extraordinary Gazette as provision made in section 25 of the ECA), as well as **Section 24** of the ECA regarding waste management and Section 20 of the ECA dealing with waste management under Part IV, Control of Environmental Pollution.

The **transitional arrangements** between the **ECA** and the **NEMA**, as well as the transitional arrangements for the various **regulations** published in terms of the NEMA are of importance and must be considered.

4.3 NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NEMA, ACT 107 OF 1998)

The National Environmental Management Act (**NEMA**, Act 107 of 1998, as amended), makes provision for the identification and assessment of **activities** that are potentially detrimental to the environment and which require authorisation from the competent authority (**in this case, the provincial Department of Environmental Affairs and Development Planning**) based on the findings of an Environmental Assessment.

It embraces the notion of **sustainable development** as contained in the Constitution of South Africa (Act 106 of 1996) in that everyone has the right:

- to an environment that is not harmful to their health or wellbeing; and
- to have the environment protected for the benefit of present and future generations through reasonable legislative and other measures.

NEMA aims to provide for cooperative environmental governance by establishing principles for decision-making on all matters relating to the environment and by means of Environmental Management Plans / Programmes (**EMP**).

Principles contained in Section 2 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended (NEMA), which, amongst other things, indicates that environmental management should:

- In order of priority aim to: **avoid, minimise or remedy disturbance of ecosystems and loss of biodiversity;**
- **Avoid degradation of the environment and avoid jeopardising ecosystem integrity;**
- Pursue the **best practicable environmental** option by means of **integrated environmental management;**
- **Protect the environment as the people's common heritage;**
- **Control and minimise environmental damage;** and
- Pay specific attention to **management and planning procedures** pertaining to sensitive, vulnerable, highly dynamic or stressed ecosystems.

It is incumbent upon the Applicant to show how the proposed activities would comply with these principles and thereby contribute towards the achievement of sustainable development as defined by the NEMA.

The proposed development entails a number of listed activities, which require a **Scoping & Environmental Impact Reporting (S&EIR) process**, which must be conducted by an independent environmental assessment practitioner (EAP). *Cape EAPrac* has been appointed to undertake this process.

4.4 NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY (ACT 10 OF 2004)

This Act controls the management and conservation of South African biodiversity within the framework of NEMA. Amongst others, it deals with the protection of species and ecosystems that warrant national protection, as well as the sustainable use of indigenous biological resources. Sections 52 & 53 of this Act specifically make provision for the protection of critically endangered, endangered, vulnerable and protected ecosystems that have undergone, or have a risk of undergoing significant degradation of ecological structure, function or composition as a result of human intervention through threatening processes.

4.4.1 The National Spatial Biodiversity Assessment (NBA)(2011)

The NBA 2011 assesses the state of South Africa's biodiversity, across terrestrial, freshwater, estuarine and marine environments, emphasising spatial (mapped) information for both ecosystems and species. The NBA is central to fulfilling the South African National Biodiversity Institute's (SANBI) mandate in terms of the National Environmental Management: Biodiversity Act (Act 10 of 2004) to monitor and report regularly on the state of biodiversity, and includes two headline indicators that are assessed across all environments: **ecosystem threat status** and **ecosystem protection level**.

Information from the NBA can thus be used to streamline environmental decision-making, strengthen land-use planning, strengthen strategic planning about optimal development futures for South Africa, and identify priorities for management and restoration of ecosystems with related opportunities for ecosystem-based job creation.

4.4.2 Garden Route Biodiversity Sector Plan (GRBSP)

A Biodiversity Sector Plan (BSP) provides a way forward in reconciling the conflict between development and the maintenance of natural systems. It provides biodiversity information needed for land-use planning and decision-making and other multi-sectoral planning processes (between Cape Nature / SANParks, DEA&DP and Department of Water Affairs, district and local municipalities etc.). Central to the Garden Route BSP is the **Critical Biodiversity Area (CBA) Map**, which together with its associated guidelines and GIS maps, have been consulted in the assessment of this development proposal.

The site falls within a designated CBA hence the importance to consider ecological corridors and functionality of open space areas through appropriate linkages of the internal and external conservation areas.

4.5 NATIONAL PROTECTED AREA EXPANSION STRATEGY (NPAES) FOR S.A. 2008 (2010)

Considering that South Africa's protected area network currently falls far short of sustaining biodiversity and ecological processes, the NPEAS aims to achieve cost-effective protected area expansion for ecological sustainability and increased resilience to Climate Change. Protected areas, recognised by the National Environmental Management: Protected Areas Act (Act 57 of 2003), are considered formal protected areas in the NPAES. The NPAES sets targets for expansion of these protected areas, provides maps of the most important protected area expansion, and makes recommendations on mechanisms for protected area expansion.

4.6 NATIONAL FORESTS ACT (NO. 84 OF 1998):

The National Forests Act provides for the protection of forests as well as specific tree species, quoting directly from the Act: “*no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a licence or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated*”.

Protected trees most likely to be located at the proposed development sites are:

- *Podocarpus latifolius* (real yellowwood)
- *Podocarpus falcatus* (Outeniqua yellowwood)
- *Podocarpus henkelii* (Henkel's yellowwood)
- *Sideroxylon inerme* (milkwood)
- *Pittosporum viridiflorum*

Should any of the trees listed above, or any other protected tree species not listed here, be harmed or removed a permit must be obtained before doing so.

4.7 CONSERVATION OF AGRICULTURAL RESOURCES ACT (CARA)

CARA provides for the regulation of control over the utilisation of the natural agricultural resources in order to promote the conservation of soil, water and vegetation and provides for combating weeds and invader plant species. The Conservation of Agricultural Resources Act defines different categories of alien plants:

- Category 1 - prohibited and must be controlled;
- Category 2 – must be grown within a demarcated area under permit; and
- Category 3 - ornamental plants that may no longer be planted, but existing plants may remain provided that all reasonable steps are taken to prevent the spreading thereof, except within the flood lines of water courses and wetlands.

There are **alien plant species within the proposed development area**, which will require control and/or removal. **Recommendations in terms of alien plant removal / control**, as well as **erosion control (and rehabilitation)** are addressed in the EMP.

4.8 NATIONAL VELD & FOREST FIRE ACT (NVFFA) (ACT 101 OF 1998)

The purpose of the National Veld and Forest Fire Act is to **prevent and combat veld, forest and mountain fires** throughout the Republic of South Africa and to provide institutions, methods and practices for achieving this purpose. Institutions include the formation bodies such as Fire Protection Associations (FPA's) and Working on Fire. The Act provides the guidelines and constitution for the implementation of these institutions, as well as their functions and requirements.

A Fire Management Plan has been compiled to inform long term fire management and ecological fire regimes. The EMP also includes this information.

4.9 NATIONAL HERITAGE RESOURCES ACT (ACT 25 OF 1999)

The protection and management of South Africa's heritage resources are controlled by the National Heritage Resources Act (Act No. 25 of 1999). Heritage Western Cape (HWC) is the

enforcing authority in the Western Cape and is registered as a Stakeholder for this environmental process.

A Notice of Intent to Develop (NID) has been submitted to HWC who commented on the NID by requesting that a **Heritage Impact Assessment (HIA)** be conducted to assess the following heritage resources: built environment, historic townscape and archaeological.

The HIA consists of an archaeological study, a built environment study as well as an assessment of the impact on the cultural landscape of the settlement.

The following triggers in terms of the NHRA are applicable to the proposed development:

Section 34 (1) No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority. **Buildings older than 60 years or with heritage significance will be altered as part of the proposed development – approval for such activities are being applied for from HWC.**

Section 35 (4) No person may destroy, damage, excavate, alter or remove from its original position, or collect, any archaeological material or object, without a permit issued by the SAHRA, or the responsible resources authority. **If archaeological materials are exposed during vegetation clearing and/or earth moving activities, then they must be dealt with in accordance with the National Heritage Resources Act (No. 25 of 1999). An archaeological impacts assessment is being conducted as part of the Environmental Process.**

Section 36 (1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.

Section 36 (3) Nor may anyone destroy, damage, alter, exhume or remove from its original position, or otherwise disturb, any grave or burial ground older than 60 years, which is situated outside a formal cemetery administered by a local authority, without a permit issued by the SAHRA, or a provincial heritage authority, in terms of Section 36 (3).

Section 38 (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—

- (a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- (b) the construction of a bridge or similar structure exceeding 50 m in length;
- (c) any development or other activity which will change the character of a site—
 - (i) exceeding 5 000 m² in extent; or
 - (ii) involving three or more existing erven or subdivisions thereof; or
 - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
 - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
- (d) the re-zoning of a site exceeding 10 000 m² in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority

An integrated HIA was submitted to the Heritage Authority for consideration. The Heritage Application was subject to its own public participation as well. The outcome of the review by Heritage Western Cape (HWC) will inform the final EIR and decision-making.

4.10 NATIONAL WATER ACT, NO 36 OF 1998

The National Water Act (NWA) gives effect to the **constitutional right of access** to water. The Act's overall purpose is to ensure that South Africa's water resources are protected, used and managed in ways which take into account a number of factors, including inter-generational equity, equitable access, redressing the results of past racial and gender discrimination, promoting sustainable and beneficial use, facilitating social and economic development, and providing for water quality and **environmental protection**.

The NWA makes persons who own, control, occupy or use land responsible for taking measures to prevent pollution of water resources, and empowers Government authorities to take measures to enforce this obligation. A Catchment Agency may enforce these obligations and recover costs from those responsible or from those who benefited from the measures.

Due to the presence of pump station locations within 500m from on-site wetlands, the Breede Gourits Catchment Management Agency (BGCMA) indicated that the proposed development requires a Water Use License (WULA) despite the Aquatic Risk Matrix indicating the risk (for pollution) to be low.

The WULA has been completed and submitted to BGCMA for consideration. The Aquatic Impact Assessment underwriting the WULA application confirmed the anticipated impacts of the development to be acceptable. The WULA has been subject to a public participation process. The WULA decision will be issued once the Environmental Authorisation is available.

4.11 PROVINCIAL BIODIVERSITY STRATEGY & ACTION PLAN

The Provincial Biodiversity Strategy and Action Plan (PBSAP) aligns with the National and Provincial Medium Term Strategic Frameworks 2014-2019 as well as the National Biodiversity Strategy and Action Plan (NBSAP), 2015-2025. It integrates South Africa's obligations under the Convention on Biological Diversity into the provincial context. The PBSAP is a strategic framework which prioritises and coordinates the collective efforts of stakeholders to ensure that biodiversity and ecological infrastructure is optimally conserved, sustainably utilised; and that benefits are equitably shared.

4.12 WESTERN CAPE BIODIVERSITY SPATIAL PLAN

Western Cape Biodiversity Spatial Plan (Pool- Stanvliet *et.al.* 2017) has specific guidelines regarding ESA loss and their sensitivity and conservation objectives. Thus, the proposed development especially the development layout is guided by those objectives to conserve and protect the ESAs.

Due to the high and medium sensitivity and the occurrences of an Endangered butterflies CapeNature recommends that the applicant consider the option for **Biodiversity Stewardship** which will ensure ecological connectivity to the neighbouring Municipal Conservation Area. The Applicant or ECO must contact CapeNature to request a stewardship site assessment and presentation of this site to the Protected Area Expansion and Stewardship (PAES) Review Committee.

4.13 GUIDELINE ON NEED & DESIRABILITY (DEADP 2017)

Although there are a number of applicable guidelines the Guideline on Need & Desirability is considered important because it relates directly to the questions of rural development and how/if it should be done. Other relevant guidelines are also considered applicable and listed in 4.14.

The Guideline on Need and Desirability (2017) compiled by the Department of Environmental Affairs contains information on best practice and how to meet the peremptory requirements prescribed by the legislation and sets out both the strategic and statutory context for the consideration of the need and desirability of a development involving any one of the NEMA listed activities. Need and desirability is based on the principle of sustainability, set out in the Constitution and in NEMA, and provided for in various policies and plans, including the NDP. Addressing the need and desirability of a development is a way of ensuring sustainable development – in other words, that a development is ecologically sustainable and socially and economically justifiable – and ensuring the simultaneous achievement of the triple bottom-line.

Refer to the Scoping Report for details on the Need & Desirability of this project.

4.14 APPLICABLE GUIDELINES FOR ENVIRONMENTAL APPLICATION PROCESSES

The following guidelines have been used to inform the process to date as well as relevant specialist studies, although this is not an exhaustive list it does highlight those developed by the Department of Environmental Affairs *inter alia*, the following:

- Guidelines for Resort Developments in the Western Cape (2005)
- Guideline for determining the Scoping of Specialist involvement in the EIA process (2005)
- Guidelines on Alternatives (2013)
- Guideline on Public Participation (2013)
- Guidelines for involving Heritage Specialists in the EIA process (2005)
- Guidelines for involving Social Specialists in the EIA process (2007)
- Guidelines for involving Visual and Aesthetic specialists in the EIA process (2005)
- Guidelines for involving Hydrological specialists in the EIA process (2005)
- Guidelines for involving Biodiversity specialists in the EIA process (2005)
- Guideline for reviewing Specialist Reports in the EIA process (2005)
- Guidelines for environmental management plans (2005)
- Circular EADP 0028/2014: One Environmental Management System
- Generic Environmental Best Practice Guideline for Aquaculture Development and Operation in the Western Cape (2007)
- Specialist Protocols (May 2020 & October 2020)
- EIR from 2016 application (inclusive of specialist studies)

4.15 PROVINCIAL SPATIAL DEVELOPMENT FRAMEWORK FOR THE WESTERN CAPE

The PSDF coordinates, integrates and aligns Provincial plans and development strategies with policies of National Government; the plans, policies and development strategies of Provincial Departments; and the plans, policies and development strategies of municipalities. It is the common spatial reference framework for delivering on the Province's strategic Development

priorities individually and collectively and therefore serves to guide the location and form of public investment in the natural and built environment, so that the returns on these investments are consistent with the PSGs.

According to the appointed Town Planner the proposed development is deemed to be in line with the PSDF as it adheres to environmental constraints, whilst optimising vacant land within the designated urban edge of the local municipal SDF.

4.16 NATIONAL WASTE MANAGEMENT STRATEGY

The National Waste Management Strategy presents the South African government's strategy for **integrated waste management** for South Africa. It deals among others with: Integrated Waste Management Planning, Waste Information Systems, Waste Minimisation, Recycling, Waste Collection and Transportation, Waste Treatment, Waste Disposal and Implementing Instruments.

4.17 DEA&DP WASTE MINIMISATION GUIDELINE DOCUMENT FOR ENVIRONMENTAL IMPACT ASSESSMENT REVIEWS (MAY 2003)

This Guideline raises awareness to **waste minimisation** issues and highlights waste and wastage minimization practices. Part B of this document is of particular importance, as it addresses issues of general waste and wastage minimization during construction activities. The EMP attached to this report attends to waste management in more detail.

4.18 SANS 10400 APPLICATION OF THE NATIONAL BUILDING REGULATIONS

The application of the **National Building Regulations** contains **performance parameters** relating to fire safety, sanitation systems, moisture penetration, structural safety, serviceability and durability. It also takes into account how the above can be established to reflect social expectations in a manner which supports sustainable development objectives. The EMP attached to this report deals with local employment and optimising local suppliers.

The Social Impact Assessment informing the application also looks at employment, skills development, investment opportunities and local economic investment opportunities.

4.19 LAND USE PLANNING ACT, 2014 (ACT 3 OF 2014) (LUPA)

LUPA gives effect to SPLUMA in the Western Cape Province. Section 49 of the LUPA gives the basis of assessment of land use applications. It states that when a Municipality considers and decides on a land use application, the municipality must have regard to at least:

- the applicable spatial development frameworks;
- the applicable structure plans;
- the principles referred to in Chapter VI (Section 59 - land use planning principles);
- the desirability of the proposed land use; and
- guidelines that may be issued by the Provincial Minister regarding the desirability of proposed land use (none issued to date).

4.20 LAND USE PLANNING BY-LAW FOR MOSSEL BAY MUNICIPALITY

The Mossel Bay Municipality: Land Use Planning By-Law, 2015 lists in Section 65 the general criteria for the consideration of applications in terms of the by-law which includes amongst other:

- the desirability of the proposed utilisation of land;

- the impact of the proposed land development on municipal engineering services;
- the integrated development plan, including the municipal spatial development framework, the applicable local spatial development framework and/or local structure plans;
- relevant municipal policies;
- the provincial spatial development framework;
- Section 42 of SPLUMA;
- the land use planning principles of LUPA; and
- the provisions of the zoning scheme.

The rezoning & subdivision application was submitted to Mossel Bay Municipality in June 2021.

The decision on this application is subject to the outcome of the scoping & impact assessment process. The **updated October 2022 SDF** does reflect this application as being consistent with the spatial planning of the greater Hartenbos Heuwels area.

The Mossel Bay Municipality will consider and issue their decision on the Planning Application once the Environmental Authorisation (EA) has been issued.

5 ENVIRONMENTAL ATTRIBUTES OF THE SITE

5.1 VEGETATION

From a botanical perspective Erf 3122, Mossel Bay (Hartenbos Hills Garden Estate) can be divided into two main vegetation types namely **low sensitivity renosterveld** and **high sensitivity grassy fynbos**.

These vegetation types occupy **two distinct topographical areas** with the **renosterveld** being found on the **upland plateau** where the development footprint is focussed. It was historically ploughed and this disturbance has carried through despite the area having apparently restored to 'good' vegetation. According to McDonald (2021) analyses of collected field data shows that the renosterveld along the ridgeline, is **relatively poor in plant species** with a significant complement of the **original species having been lost** and according to CapeNature in their comment on the Scoping Report, can also be as a result of the microclimate of the study area.

The lower lying **grassy fynbos**, on the other hand, is relatively undisturbed and has much **higher sensitivity** in terms of botany, fauna, biodiversity as well a aquatic disciplines.

It is noted that the botanist has done several investigations on and around Erf 3122 dating back to 2006, again in 2017 and 2022. He also sourced from existing, available botanical reporting of the study site done by Nick Helme in 2016.

According to the Western Cape Biodiversity Spatial Plan (Pool-Stanvliet *et.al.* 2017) the erf has Critical Biodiversity Areas (CBA 1: Terrestrial, Aquatic, Wetland; fragments of CBA 2: Terrestrial) and Ecological Support Areas (ESA 1: Terrestrial; ESA 2: Restore). The erf has freshwater features and a National Freshwater Ecosystem Priority Areas (NFEPA).

- The Vlok (2014) fine scale vegetation map the area as Brandwag Fynbos-Renoster Thicket, while the area is mapped as **Endangered** Groot Brak Dune Strandveld in the NEM:BA threatened ecosystems gazette, **2011**.
- In the draft ecosystem threat listings for the updated National Biodiversity Assessment (Skowno *et al.* **2018**) the vegetation is listed as **Vulnerable**. Groot Brak Dune

Strandveld has been heavily transformed in the past and only about 1 % of this vegetation is protected in private nature reserves (Mucina and Rutherford 2006).

- According to the National Biodiversity Assessment (Skowno *et al.* 2018) the vegetation on site will be classified as **Critically Endangered** Mossel Bay Shale Renosterveld. Mossel Bay Shale Renosterveld is one of seven high risk critically endangered vegetation types in South Africa (Skowno *et al.* 2018). This vegetation has a conservation target of 27% and is not protected (Mucina and Rutherford 2006).

Despite virtually the entire area of Erf 3122, Mossel Bay (Hartenbos Hills Garden Estate) being classified as **Critical Biodiversity Area (CBA1)** in the Western Cape Biodiversity Spatial Plan (WCBSP 2017), it has been determined from **field studies** (study by Helme in 2016, as well as further ground-truthing by McDonald in 2017/2022) that the area occupied by renosterveld is **not deemed sensitive within the development envelope**. McDonald submits that at best it be **re-classified as Ecological Support Areas (ESA1)** as it better reflects the ecosystem threat status of the habitat. It is noted that a formal change in the CBA status must be reported to CapeNature for verification through a formal submission process.

Because CBAs are not only mapped due to the vegetation type of the site, but can be determined due to other features such as **corridors for animal movement, sensitive ecosystems, climate change adaptation corridors** it is important to verify through the biodiversity assessment. CapeNature in their comment on the Scoping Report indicated that it will accept that the entire site be classified as Ecological Support Areas should these features not be present on site.

According to McDonald (2022) the renosterveld areas within which the development is proposed, have **low botanical sensitivity**, therefore opportunity exists to develop these areas whilst still achieving the ecological outcomes of it being reclassified as an ESA (approximately 60% of the site).

5.1.1 Renosterveld on the central plateau and warm, dry west- and north-facing slopes

Renosterveld is the dominant vegetation type on Erf 3122, Mossel Bay (Hartenbos Hills Garden Estate). It is found on the central plateau and on the warm, dry westerly and northerly slopes. The soils are gravelly and have a clay-rich matrix. This vegetation type has a grey appearance due to the colour of the dominant shrub species, *Elytropappus rhinocerotis*, the renosterbos. Shrubs of this species are from 1—1.5 m tall and generally, but not always, form a mid-dense to dense canopy over other lower shrubs. The cover of renosterbos is from 80 – 90 % with other shrubs forming a much lower proportion of the cover. Low & Rebelo (1996) describe the physiognomy of South Coast Renosterveld as ‘open to mid-dense, cupressoid and small-leaved, low to mid-high shrubland, with ‘emergents generally absent’. McDonald submits that the renosterveld vegetation along the ridgeline at Hartenbos fits this description well.

The understorey of the renosterveld can range from being a sparse covering of low shrubs, forbs and grasses to a dense grassy sward with some shrublets and forbs. The pattern in the renosterveld at Erf 3122 is that dominance can change and renosterbos can be completely absent in which case grasses, particularly *Hyparrhenia hirta* dominate. This results in either a patchy mosaic of small grass-dominated patches within larger renosterbos-dominated stands of vegetation or the opposite where grasses dominate over wide areas with renosterbos either absent completely or occurring in varying density but usually sparsely.

Renosterveld, wherever it occurs, is well-known for its diversity of species and the renosterveld when the author surveyed Erf 3122 Mossel Bay in 2006 and later for this application, it was found that there was a fair species richness in the renosterveld. An exhaustive species list was not compiled for the renosterveld at Erf 3122 but genera and species that were found to occur include, *Asparagus africanus*, *Asparagus cf. falcatus*, *Berkheya* sp., *Boophone disticha*, *Brachiaria serrata*, *Bulbine* sp., *Carissa bispinosa*, *Carpobrotus acinaciformis*, , *Chrysocoma ciliolata*, *Commelina africana*, *Cynanchum viminale*, *Dianthus caespitosus*, *Digitaria eriantha*, *E. rhinocerotis*, *Ehrharta* sp., *Eragrostis curvula*, *Eriocephalus africana*, *Euclea undulata*, *Glottiphyllum depressum*, *Gnidia cf. polystachya*, *Hermannia flammea*, *Hibiscus* sp., *Indigofera* sp., *Jamesbrittenia argentea*, *Lobelia* sp., *Merxmuellera stricta*, *Ornithogalum dubium*, *Osteospermum moniliferum*, *Polygala myrtifolia*, *Pteronia* spp., *Rhus glauca*, *Ruschia cf. hamata*, *Selago* spp., *Tephrosia* sp., *Themeda triandra*, *Ursinia cf. nudicaulis* and species in the Acanthaceae (cf. *Blepharis* sp.).

One misinterpretation of McDonald (2006) at the time of his initial site assessment, was that the lack of geophytes found in the 2006 survey which was attributed to season. Subsequently it was found by Dr McDonald that the lack of geophytes is more likely due to a large area of the central plateau having been exposed to historical dry land cultivation, frequent wildfires and microclimate conditions that the geophytic flora got lost.

The grassveld encountered at Hartenbos Hills Garden Estate is considered to be a 'sub-community' of the renosterveld. Species composition of the grassveld is very similar to that of the renosterveld proper except that there is a dominance of grasses, especially *Hyparrhenia hirta*. The grassveld has a different signature on aerial photographs and is clearly distinguishable in the field from the true renosterveld. The grassveld tends to occur on well-drained north-facing and some west-facing slopes where it occurs as pure stands over fairly large areas as opposed to the renosterveld which has its best expression on the relatively flat table-land or plateau. As described above the grassveld can also be in a patchy mosaic with renosterveld.

This is particularly so when the renosterveld has been disturbed and the renosterbos is removed either mechanically or with overgrazing, such as alongside roads or by fire. Grasses aggressively colonize these gaps in the renosterveld. Additional species found in the grassveld that were not noted by McDonald in 2006, were noted with subsequent site inspections, in the renosterveld include *Albuca* sp., *Aristida junciformis*, *Aspalathus* spp., *Berkheya armata*, *Brunsvigia* sp. (cf. *orientalis*), *Crassula* sp. (2), *Ehrharta scabra*, *Eragrostis capensis*, *Pentaschistis eriostoma*, *Senecio* sp. (succulent leaves).

5.1.2 Scrub thicket

Both Acocks (1988) and Low & Rebelo (1996) recognized the incidence of thicket patches within the renosterveld. Acocks judged that these thickets were probably relics of a once more widespread vegetation type whereas Low & Rebelo suggested that thicket occurs where the relief is greater, rainfall is low and fire cannot spread easily into these protected microhabitats.

The thicket vegetation is dense, thorny and impenetrable and at Erf 3122 Mossel Bay (Hartenbos Hills Garden Estate) the thicket community includes species such as, *Aloe ferox*, *Bulbine* sp., *Carissa bispinosa* (Num num), *Crassula* sp. *Cussonia spicata* (Cabbage tree), *Cynanchum viminale*, *Diospyros lycioides*, *Gymnosporia buxifolia*

(Common spike-thorn), *Olea europaea* subsp. *africana* (Wild Olive), *Rhus lucida*, *Schotia afra* (Boerboon), *Sideroxylon inerme* (Milkwood).

5.1.3 Fynbos on the cool, south and eastern facing slopes

In contrast to the renosterveld on the dry slopes, the cooler south-facing slopes, that are probably also moister, support fynbos vegetation. Even though certain elements of fynbos such as some restios (Restionaceae) and *Bobartia robusta* (Iridaceae) occur in the renosterveld, the clue to the presence of true fynbos communities is the presence of Ericaceae, Restionaceae and Proteaceae growing together. The substrate is similar to that on which the renosterveld is found; the surface of the soil is covered (80%) with round pebbles of varying sizes (10 mm – 200 mm) but is probably gravellier, with a lower clay fraction, than where renosterveld is found. This, however, was not confirmed. The fynbos community has a cover of 80% with two layers and emergent shrubs up to 2 m. *Erica hispidula* is dominant in the upper stratum, <1 m high, with a cover of 60 %. The lower stratum < 50 cm high is graminoid and dominated by grasses and restios. Depending on the location, emergent shrubs such as *Leucadendron salignum*, *Protea lanceolata* and *Erica discolor* var. *speciosa* have variable cover. *L. salignum* and *E. discolor* var. *speciosa* generally have a low cover whereas *P. lanceolata* can form dense stands of a large number of individuals. Another striking aspect of the fynbos vegetation is the occurrence of a large number of plants of *Bobartia robusta* (Iridaceae) which have a relatively low cover but high abundance and are very obvious in the overall appearance of the fynbos in this area.

The bright red geophyte, *Tritoniopsis antholyza*, was in flower at the time of sampling in December 2006/2017/2022. At that time, it was abundant, and from the evidence of porcupine digging it was concluded that the corms are obviously much sought after by these animals. No other geophytes were found while searching through the fynbos and this was most likely because the season was well advanced into summer as opposed to possible historical ploughing as in the renosterveld.

The most important aspect of the fynbos vegetation is the occurrence of *Protea lanceolata* (Lance-leaved Protea). According to Rebelo (1995) this species occurs on the Potberg (De Hoop) and the Riversdale Flats and at the fynbos / thicket ecotone at Mossel Bay on gravels from 0 – 200 m. It was listed in the Red Data list as Vulnerable (Hilton-Taylor 1996; Raimondo *et al.* 1999) and Rebelo (1995) attributed this to the invasion of its habitat by rooikrans (*Acacia cyclops*). However, in the most recent appraisal (<http://redlist.sanbi.org/species.php?species=799-68>) it is considered to be Least Threatened.

At Hartenbos Hills Garden Estate, three distinct stands of *P. lanceolata* were found on south-facing slopes in fynbos vegetation by McDonald (2006/2017/2022). At one of these sites the stand of *P. lanceolata* is being heavily impacted by invasive rooikrans (*A. cyclops*) and this situation needs to be remedied. Only one part of the current study area i.e. near the eastern entrance gate on the southern slopes, supports *P. lanceolata* (development avoids this area).

Virtually the entire area of Erf 3122, Mossel Bay is mapped as **CBA1** with small areas mapped as CBA2 and even fewer areas mapped as ESA1. From **field observations** made by the appointed botanist, there is **poor correlation** between the **WCBSP map** and the ground-truthed **sensitivity of the vegetation**.

The areas covered by renosterveld are **not botanically sensitive** and have **low plant species diversity**. The botanist contends that the **renosterveld area should be mapped as ESA1**

and **not CBA1 or CBA2**. This contention is taken into account when determining the constraints on the site as well as in conducting the impact assessment.

The National Web-based Screening Tool was applied for Erf 3122, Mossel Bay and the result was that the site has a medium sensitivity with respect to the relative plant species theme. There are also **not many sensitive species** and regarded as sensitive in the species list.

The relative terrestrial biodiversity theme sensitivity in the Screening Tool is given as very high. Both Helme (2016) and Dr McDonald (2006/2017/2022) do not agree with the assigning of CBA1 to Erf 3122, Mossel Bay in the Western Cape Biodiversity Spatial Plan (Pence, 2017; Pool-Stanvliet, 2017). According to both botanists the **biodiversity sensitivity of the erf is over-stated** and this has been drawn down into the National Web-based Screening Tool where the 'error' has been perpetuated. The terrestrial biodiversity sensitivity is more realistically **Medium**.

As for the study by Helme of the study site and greater area including the municipal conservation area (2016) **no species of conservation concern** were found on the site in this study. Helme (2016) made observations of endangered species and regional endemics that occur in the near vicinity of the study area. He speculated that these species could occur on the site but that the probability of their occurrence is low. McDonald considers this to be accurate especially with the development footprint being restricted to the renosterveld.

All endangered species or protected species listed in Schedules 3 and 4 of the Western Cape Nature Conservation Laws Amendment Act, 2000 (Act No. 3 of 2000) may not be picked or removed without the relevant permit, which must be obtained from CapeNature. This is to ensure that rescued plant material is accounted for and used in the rehabilitation or relocation process. It is recommended that a **botanist be appointed to survey the different phases of the development prior to removal of any vegetation** to ensure that any protected species are recorded through the correct permitting processes.

According to Dr Dave McDonald (botanical & biodiversity specialist) the proposed layout reflects the opportunity to develop mainly on the plateau of Erf 3122, Mossel Bay (Hartenbos Hills Garden Estate), while avoiding the fynbos areas on the slopes deemed sensitive (mainly south- to east-facing slopes).



Figure 20: Botanical sensitivity indicated for Erf 3122 (Source: Bergwind Botanical Surveys).

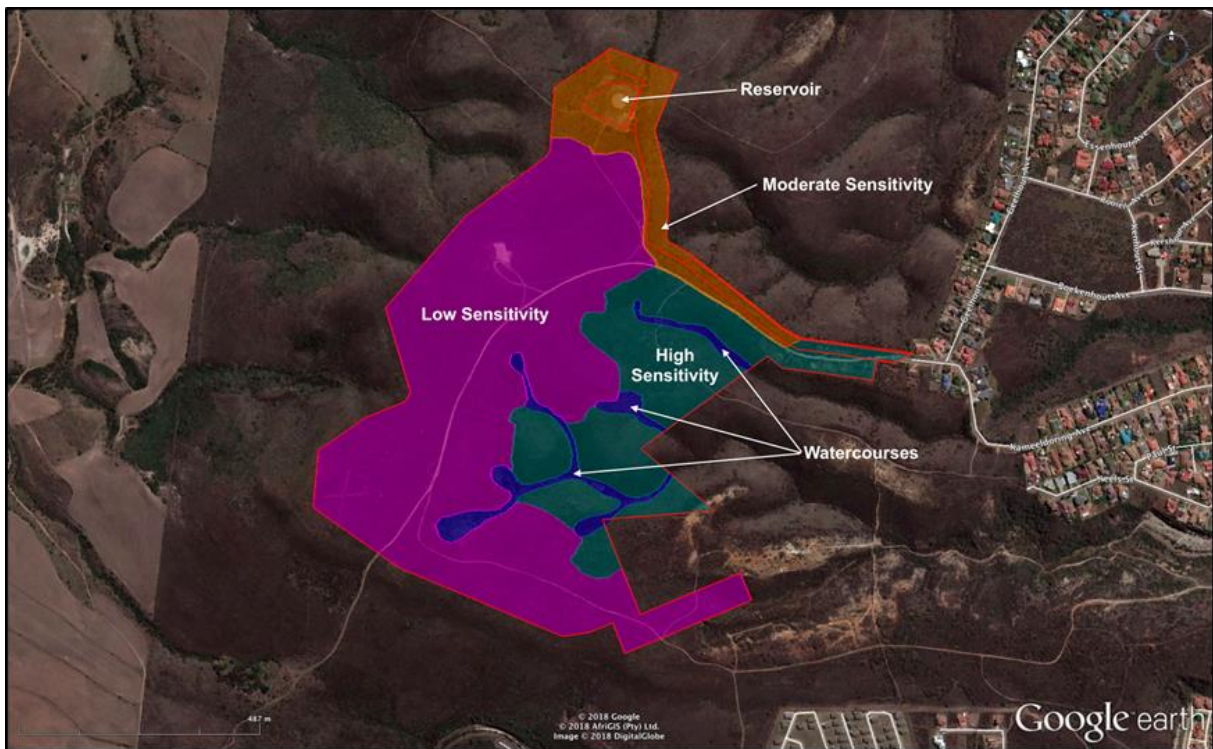


Figure 21: Sensitivity layer for Erf 3122.

6 FAUNAL CONSIDERATIONS

Simon Todd (Todd, 2018) provided baseline environmental information and anticipated impacts to be assessed. At the time of updating, Mr Todd was unavailable and Dr Marius vd Vyfer (Chepri Consulting) conducted a further updated study (2021) to address compliance with the specialist protocols. Chepri concurs with the Todd report, however highlighted the need for additional site inspections to verify the presence of a number of listed birds as per the Screening Tool.

The SEF faunal assessment (2013) described the overall faunal (ecological) sensitivity of the site as medium-high which is a higher rating compared to the findings of the more recent studies, most notably as a result of the change in habitat/CBA description.

A specific recommendation from the SEF (2013) faunal assessment which is also supported by Colville (2022) is for the installation of bird flappers or bird flight diverters along the existing 11kV line where it transects the development property. The EAP submits that such an additional measure be implemented to improve and limit collision of bird species that have been noted to occur on the property and that may utilise the lower lying (eastern) parts of the site that falls within the internal conservation area and incidentally is also where the existing 11kV overhead electrical line runs.

The faunal impact assessment was completed by Dr Jonathan Conville (2022). Colville (2022) considered more detailed information pertaining to ecological resources and the impacts of the proposed development. Faunal species of conservation concern (SOCC) were noted within the habitat close to the reservoir earmarked for a butterfly reserve. This area offers high-quality habitat for the butterfly SCC, and several other faunal elements. Black Harrier (*Circus maurus*), a bird species of high conservation concern, although not flagged by the screening tool for this project, was also recorded from this area as well as by SEF (2013) and its behaviour suggested that it could be breeding at this site which will be avoided by the development.

The findings of the current faunal assessment, based on the desktop study and site visit (see result sections above), align mostly with those of van der Walt (2013), Todd (2018), and Edge (2021), with the exception that Conville (2022) increases the sensitivity of the upper flat areas of renosterveld to Medium to account for the potential presence of Denham's Bustard, and the area where the Harrier was seen to High (within the butterfly reserve area). The findings of Colville (2022) also aligns mostly in terms of habitat sensitivity with the botanical reports of Helme (2016) and McDonald (2022), and the freshwater report of Ewart-Smith (2021) earmarking the valleys, drainage lines and lower lying eastern areas as sensitive and important faunal corridors connecting these sensitive areas to the remaining natural areas. Of high concern for the faunal SOCC is the presence of alien plant encroachment into the lower lying grassy fynbos and watercourse and drainage habitats. Removal of these plants would have a positive impact on local faunal SOCC populations.

Restoring and retaining parts of the Erf 3122 as natural vegetation and retaining ecological corridors to natural vegetation that are currently connected to several sides of Erf 3122 would have a positive conservation impact, but it is noted that vacant sites along the eastern boundary of the study area are designated for development, hence connectivity must be focused towards the North, West and South.

The compromise between the loss of Denham's Bustard habitat within the development envelope and the creation of a sizeable butterfly reserve incorporating a potential Black Harrier breeding site, is considered acceptable for this development.

Site inspections and field assessment of the site and the proposed development areas was conducted by separate faunal specialists in order to identify and characterize the ecological features of the site and develop an **ecological sensitivity map for the site**.

According to Todd the drainage lines of the site and their adjacent slopes are considered the most sensitive feature of the site and are important for landscape connectivity. They are however generally degraded and dominated by alien *Acacia cyclops*. The plateau of the site is flat and fairly homogenous and is not considered highly sensitive from a faunal perspective as a large proportion of this area has been previously transformed. It is however still used by a variety of small mammals, birds and reptiles and retains some value as habitat as well as for broad-scale connectivity. A variety of species including Caracal, Porcupine, Cape Hare and Aardwolf were recorded on the plateau area.

Although the development footprint falls mostly within the area deemed to have low faunal sensitivity, the **area to be fenced is significantly larger** than the footprint and for the larger mammals of the area, the **habitat loss resulting from the fenced area** must be managed and will benefit from the **proposed faunal gates**, as well as **specialised faunal fence installations** in support of animal movement as per Alternative 3.

The detailed faunal impact assessment was completed by Dr Jonathan Conville (2022). Colville (2022) considered more detailed information pertaining to ecological resources and the impacts of the proposed development. Faunal species of conservation concern (SOCC) were noted within the habitat close to the reservoir earmarked for a butterfly reserve. This area offers high-quality habitat for the butterfly SCC, and several other faunal elements. Black Harrier (*Circus maurus*), a bird species of high conservation concern, although not flagged by the screening tool for this project, was also recorded from this area as well as by SEF (2013) and its behaviour suggested that it could be breeding at this site which will be avoided by the development.

The findings of the current faunal assessment, based on the desktop study and site visit (see result sections above), align mostly with those of van der Walt (2013), Todd (2018), and Edge (2021), with the exception that Conville (2022) increases the sensitivity of the upper flat areas of renosterveld from Low (Todd 2018) to Medium to account for the potential presence of Denham's Bustard, and the area where the Harrier was seen from Medium (Todd, 2018) to High (within the butterfly reserve area).

The findings of Colville (2022) aligns mostly in terms of habitat sensitivity with the botanical reports of Helme (2016) and McDonald (2022), and the freshwater report of Ewart-Smith (2022) earmarking the **valleys, drainage lines and lower lying eastern areas as sensitive and important faunal corridors** connecting these sensitive areas to the remaining natural areas. Of high concern for the faunal SOCC is the presence of **alien plant encroachment** into the lower lying grassy fynbos and watercourse and drainage habitats. Removal of these plants would have a positive impact on local faunal SOCC populations.

Butterfly species of concern were identified on the site by Dr Dave Edge following the faunal and botanical investigations.



The location of the species was found along the existing municipal reservoir and the recommendation is that the area be defined as a butterfly reserve. Invasive alien clearing and controlled burning (at the appropriate time of the year) is important to support this reserve habitat and ensure the butterflies are not impacted negatively by the proposed development.

In Alternative 3 the designated butterfly reserve will be excluded from the Estate fencing to allow it to act as an ecological corridor that can link to the surrounding and remaining natural areas and act as an ecological corridor with the Municipal Conservation Area.

Dr Edge specifically stipulated that the existing gravel road leading to the reservoir must not be tarred (as this will impact on the symbiotic ant species and burning of the reserve in the long-term will be critical to ensure survival of the species).

7 FRESHWATER CONSIDERATIONS

A number of ephemeral watercourses were identified and mapped within the study area as well as along the eastern and northern boundary of the Erf 3122. These were assessed in terms of their key characteristics, condition and ecological importance during the Constraints Analysis Phase of the project and details of the assessment are included in Ewart-Smith (2022) and summarised below.

Watercourses within the study area are fed by **seep habitats** and the transition from seep to **watercourse** in all instances was identified by the change from diffuse runoff to the presence of a channel carrying concentrated flows during rainfall events. Watercourses within the study area were characterised by a **narrow riparian fringe**, dominated by shrubs such as *Searsia glauca* and *Osteospermum monolifera*.

Most hillslope seeps and watercourses within the study area are **largely natural** with limited invasion of alien vegetation. They support vegetation communities that are denser than the upslope terrestrial habitats and thus **contribute to ecosystem services** such as **flood attenuation, streamflow retention, sediment trapping and erosion control**. Also these systems fall within a regionally threatened vegetation type and, despite some degradation, still provide **ecologically functional habitat** for the provision of **shelter and food** and the **movement of fauna**.

Considering that Erf 3122 straddles two watersheds and thus the watercourses and seeps represent the **source zones of watercourses** further downstream, these systems are

particularly important for connectivity and genetic dispersal of both fauna and flora between catchments at a landscape level. Besides their ecological importance, ephemeral systems such as those on Erf 3122 are **highly sensitive to anthropogenic disturbance**. Even small changes in peak flows, runoff intensity and channelization can exacerbate erosion and bank destabilisation and elicit the knock-on effects of ecological degradation. Collectively therefore, these habitats are rated as having a **high Aquatic Ecological Importance and Sensitivity**.

As a result of the aquatic specialist findings, the services layouts, most notably the stormwater layout (focussing on treatment and discharge) have been informed by the aquatic specialist to ensure that minimum disturbances will occur either directly or indirectly for the lower lying watercourses, and the engineer has designed the services accordingly.

Noted is the fact that the two sites immediately adjacent and to the East of the sensitive lower lying slopes and watercourses running from Erf 3122 are both designated for development. No information is available about any specific layouts, but consideration must be given to allowing corridor movement through these private sites in support of corridor functioning between the Hartenbos Garden Estate internal Conservation Area and the existing open space area within the greater Hartenbos Heuwels (which is separated by the two private properties in question) – area indicated with yellow circle.

The location of the various sewage pump stations have been considered and the necessary mitigation measures such as having additional overflow capacity with generators as electrical backup (to protect against sewage overflowing into the natural environment during power failures/loadshedding) have been considered as part of the Risk Matrix, Water Use License application and aquatic impact assessment.

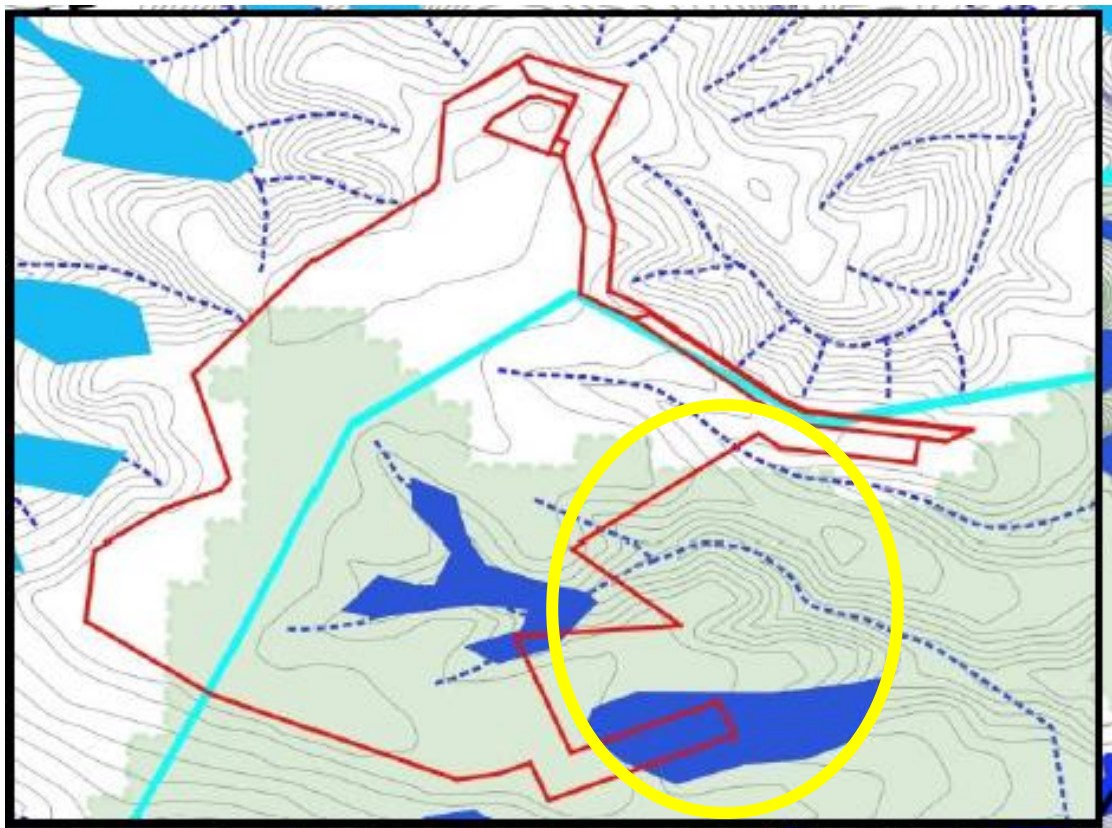


Figure 22: National freshwater priority area map.

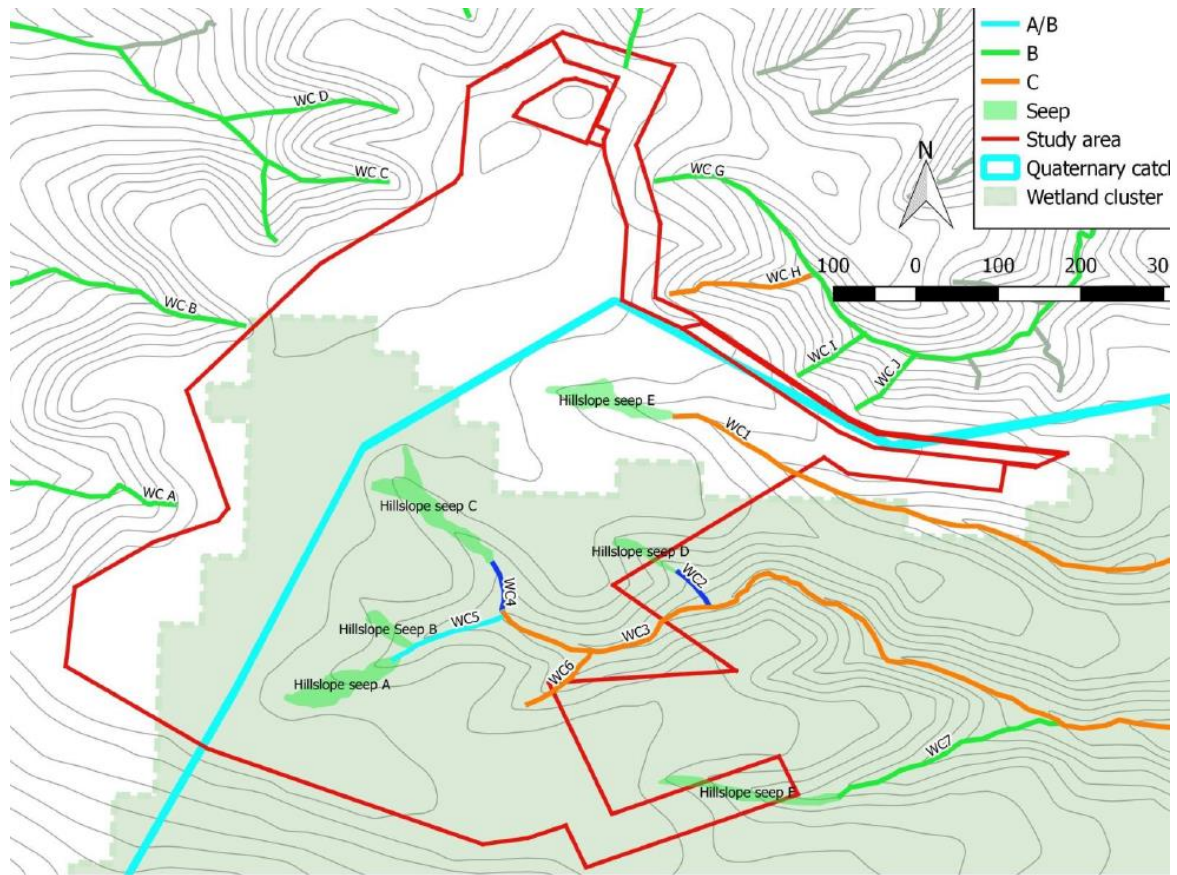


Figure 23: Site verified information on watercourses/wetlands.

Despite the provision of a setback (for the layout which has been adhered to), the ephemeral seeps and watercourses within and surrounding the study area **are particularly vulnerable to water quality and quantity changes** associated with catchment hardening. Effective mitigation measures to address these impacts have been identified by the specialist. In particular, the assessment of the stormwater management has been a focus of the aquatic impact assessment along with a maintenance plan to ensure continued quality control and habitat protection once the project is developed.

8 HERITAGE CONSIDERATIONS

According to De Kock (2022) early Census and Slave Office records indicate that a substantial number of slaves were resident on the greater farm Hartenbosch and employed by Esias Engelbrecht Meyer, farm owner and son of first recipient of this farm in 1734, which theme is considered of high local significance, though it is possible to confirm to what degree said theme is pertinent to the subject property within the original mother farm property.

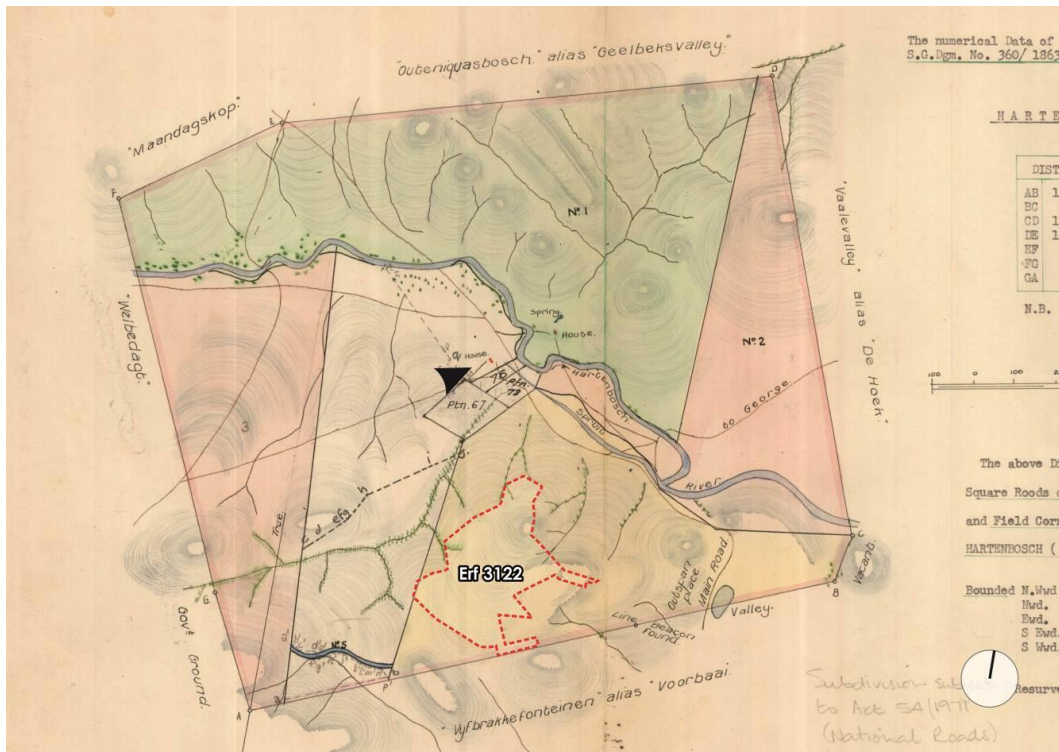


Figure 24: Approximate location Erf 3122, Hartenbos as transposed onto 1863 diagram for the early farm Hartenbosch (SGO as edited) (Source: de Kock 2022).

An archaeological report was prepared by Dr. Nilssen (2021) and Pether (2021) in response to the proposed development proposal. The studies confirms that of two sensitive archaeological occurrences noted in previous investigations, one (waypoint 34) have been accommodated in the development footprint. No tangible heritage resources of the historic period were identified.

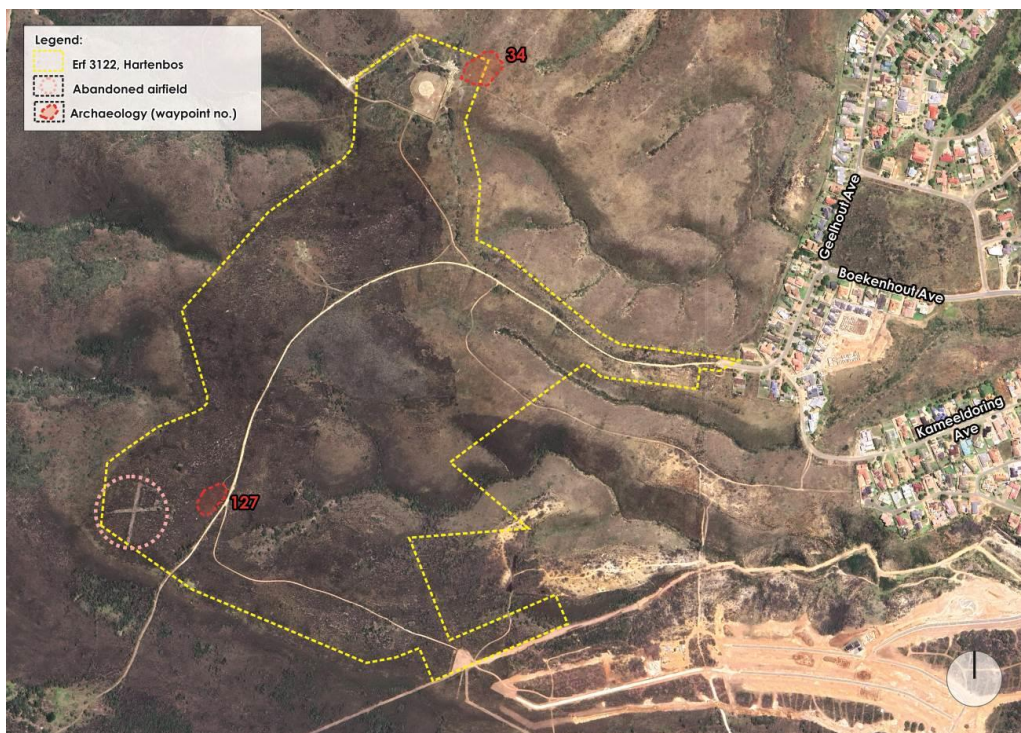


Figure 25: Site boundaries with archaeological waypoints indicated and accommodated with the development proposal (Source: Nilssen 2021).

The contexts of these finds are mostly disturbed and therefore they are of low to no significance, and Not Conservation Worthy (Nillsen 2021). The two archaeological occurrences, one of mainly Middle Stone Age implements and another of mostly Early Stone Age specimens are considered to be of medium significance at the local level (field rating: Grade IIIB) and recommendations for their protection and conservation have been accommodated.

- Waypoint 34 – “MSA scatter of stone artefacts recorded in close proximity to an existing reservoir and at one of the highest points on the property. While densities were not calculated, the scatter contains higher densities of stone artefacts than seen elsewhere on the property. On average, there is less than one artefact per square meter. This is a low to medium density scatter of materials roughly 250m² in extent and some artefacts are still imbedded in sediment. Specimens include hammer stones, a hammer stone/grindstone, various cores, blades, flakes, convergent flakes or points and chunks, and all these are in medium to fine grained quartzites of differing colour. Retouched pieces occur but are rare and no formal tools were identified.”
- Waypoint 127 – “a medium to low density stone artefact scatter of ESA implements was identified and is situated on a high point of the property and near the miniature airfield. While the density of artefacts was not calculated, densities are higher than at other occurrences. On average, artefacts occur at less than one artefact per square meter. The occurrence is about 300m² in extent and is situated in formerly ploughed and cultivated fields. Artefacts include large cores, crude and finer bifacial hand axes, “chopper” tools (probably worn-out hammer stones and/or cores) and flakes. All specimens are in quartzite that is variably patinated and coloured. The site was revisited in 2017 and 2022 and despite thicker vegetation cover and a few dumps of garden refuse, the locality of the photographed artefacts was easily found.”

A palaeontological scoping report (2021) was prepared by Dr. John Pether in response to the proposed development proposal to which he responded as follows:

“Most of the development affects the stony soil developed on the Cretaceous Buffelskloof Formation (Uitenhage Group) and the underlying conglomerates and interbedded sandstones and siltstones. Petrified fossil wood and other plant remains are expected. The fragmented bones and isolated teeth of dinosaurs could occur but are exceptionally rare. An outlier of Bredasdorp Group deposits underlies the summit of the hilltop in the north. The mid-Miocene marine De Hoopvlei Formation is affected only by the construction of the perimeter fence (post holes) and the making of a perimeter service road. It is possible that fossil marine shells could be unearthed, particularly along the inner edge of the road cut-ins on the steeper slopes.

The decision to create a conservation area in the northern area around the reservoir, where previously 16 plots were laid out on top of the Wankoe Formation aeolianite, which is of Moderate palaeontological sensitivity, is positive. Not building in this area reduces the potential impact on this palaeontological resource significantly. The Wankoe Formation will only be affected only by the construction of the perimeter fence (post holes) and the making of a perimeter service road. Sparse bones may occur and any such material, both small and larger, is of high value. The land snails in these old aeolianites are of interest. The partly-overlying, late Quaternary Qg coversand/soil rarely sequesters fossils, but material associated with buried archaeological remains could occur.”

Pether further recommends as follows:

“A practical monitoring and mitigation programme must be implemented during the Construction Phases of the proposed housing development. The following measures apply to all earthworks affecting all four formations listed above.

- The field supervisor/foreman and workers involved in digging excavations must be informed of the need to watch for fossils and buried potential archaeological material.*
- Chance Fossil Find Protocol provides guidelines to be followed in the event of fossil finds during the construction phase.*
- It is also recommended that fresh exposures of the marine beds that may be created during construction, such as along the perimeter road, are recorded and sampled by a palaeontologist. To this end the ECO must liaise with the contracted palaeontologist as to the progress of road construction earthworks. It is proposed that exposures of the De Hoopvlei Formation Miocene beds and the overlying Wankoe Formation that may be created along the perimeter road are highlighted by explanatory signage.*
- Should the fossil content indeed indicate a mid-Miocene age for the De Hoopvlei Formation this site will be important and records will have to be submitted to the heritage authority.”*

The outcome of the integrated HIA did not highlight any constraints not already avoided, or that cannot be mitigated successfully. The recommendation of the specialist is for the HWC to approve the HIA.

The heritage investigation undertaken in relation to the previous development proposal for Erf 3122 relied on analysis of present urban development, rural and natural landscape aspects, settlement morphology and traditional landscape patterns to inform analysis of the cultural landscape context. HWC's final comments dated 7th July 2011 (previous application) regarding the previous proposal point towards the need for a detailed assessment of the proposal. Subsequent engagement with the HWC as part of the current application process reaffirmed the need for an integrated HIA which was undertaken by Perception Planning (2022).

9 VISUAL LANDSCAPE

According to the Visual Impact Assessment (VIA) the proposal would be visible within a 1km radius from adjoining areas to the northeast as well as the southwest – mostly by ways of future housing located along the ridgeline and edge of the plateau upon which the property is located. These houses however would be facing south (to maximise seaviews) and as such the impact of seeing a development on the site is not significant.

Given the pattern of existing and approved urban development within the direct proximity of the property much of these visual impacts are to be viewed within the context of existing and approved urban development.

The proposed development will certainly have a cumulative impact on remnants of the rural cultural landscape context remaining to the west. However, taken in conjunction with the long-standing designation of Erf 3122 for township development within the designated urban edge,

as well as the low overall quality and moderate to low (contextual) significance rating of the cultural landscape, the visual specialist is supportive of the development proposal, subject to the conditions of the visual (most notably associated with night lighting) as well as the heritage impact assessment.



Figure 26: View from the N2 approaching Hartenbos with existing residential development clearly visible and extending onto and over the ridgeline (Source: BCK 2022).



Figure 27: View to the site from the R101 close to the R101 intersection with Louis Fourie, Hartenbos Heuwels extensions clearly visible along the slopes (Source: BCK 2022).



Figure 28: View from Hartenbos River in the south looking North with Hartenbos township clearly visible on the left side and along the slopes (Source: BCK 2022).



Figure 29: View from the R101 further north overlooking Sonskynvallei and the existing mining activities (Source: BCK 2022).



Figure 30: View from within Hartenbos Heuwels towards the North overlooking the ridgeline and powerline (Source: BCK 2022).



Figure 31: View from deeper within Hartenbos Heuwels overlooking existing residential development with the reservoir in the background (Source: BCK 2022).

The visual impact mitigation measures proposed and adopted with the preferred alternative will reduce the visual intrusion described above within the 500 m radial by improving the visual fit of the proposed development into the landform and the existing landscape. It is recommended that the mitigation measures presented be further incorporated during the detail design stage, so that the engineering and aesthetic components are all integrated.

In this way mitigation measures are part of the total layout cycle and design concept and are included in the construction contracts. Based on the field observations and the studies undertaken by the visual specialist, and with the implementation of the mitigation measures, the visual specialist concluded that the development of Hartenbos Erf 3122 will exert a **medium negative** significant impact on the affected visual environment which considering the urban context and focus on seaward views, is deemed acceptable.

10 SUMMARY OF POTENTIAL RISKS AND IMPACTS

The project team and specialist input has identified the following as potential issues/concerns/impacts to date. The public participation process will help identify any additional potential concerns, risks and impacts (both positive and negative) that may arise from this development proposal.

- Fire risk (the site is situated within a high fire risk area and Hartenbos Heuwels have experienced damaging wild fires in recent years);
- Additional traffic and particularly the potential impact of increased traffic on intersections onto arterial roads during both construction and operational phases;
- Environmental impact associated with the proposed development, most notably biodiversity (ecological patterns and processes), landscape connectivity and impact on habitat/species diversity;
- Management of invasive alien vegetation within undeveloped areas (also linked to fire risk);

- Benefit of creating additional employment opportunities through construction and operational components as well as income generation through rates & taxes;
- The visual impact of the proposed development on ridgeline in particular;
- Historical decisions on previous applications to be considered.

Table 3: Potential impacts/risks associated with the proposed development as broken up into specific disciplines.

Possible Constraints	Specialist Input
Ecological	<p>Active alien clearing is however required for the transformed areas (most notably the ridgeline and watercourses) in order to ensure that the environment will also benefit from the proposed development. Alien clearing is detailed in the EMP.</p> <p>Fire management is raised as a concern although it is unlikely to be a major risk factor to development nodes themselves, however the area is known for wild fires and therefore detailed fire management recommendations are incorporated as part of the overall management goals for the site.</p>
Fire Management	<p>Proximity of frail care to areas that will require ecological burning. Controlled fires must not be compromised once the area is occupied.</p> <p>Neighbouring areas to the west are conservation areas that must be burned and smoke from such fires may pose a nuisance to residents.</p>
Freshwater	<p>The site contains a number of on-site watercourses. Unnecessary encroachment of development onto these features is unwanted. Aquatic buffers on all major drainage lines and smaller tributaries are recommended to minimise potential impacts.</p> <p>Active alien clearing along all affected watercourses must be implemented as a mitigation measure to help improve the aquatic environment that will be affected by this proposal.</p> <p>Stormwater management (for both quantity and quality) is important and must be assessed in terms of the detailed stormwater management plan.</p>
Heritage	<p>Integrated heritage assessment completed and submitted to the heritage authority for consideration.</p>
Social	<p>Meeting housing demand specifically for secure (gated) developments as people relocating to the area come from areas deemed to be high-risk and are used to high levels of security.</p> <p>Employment opportunities during construction and operational phase.</p> <p>Skills transfer and training is important to optimise benefit to previously disadvantaged and lower income groups.</p>
Traffic	<p>Access through Hartenbos Heuwels and intersections onto Louis Fourie and R108/R386. Detail the responsibility of upgrading of these intersections (either Municipality into Arterial Management Plan for their greater mobility study) or responsibility of the</p>

	Applicant. Must consider construction traffic through residential areas of Hartenbos Heuwels (routes identified).
Butterfly	Species identified in proximity to the municipal reservoir have conservation value and their habitat must not be compromised. Alternative 3 accommodates this requirement. Alien clearing and appropriate fire regimes are important which must not be deviated from once the development is occupied. The reserve will not be fenced-in with the Estate to ensure that it can act as a corridor linking neighbouring remaining natural areas.
Visual	Ridgeline development must be managed and mitigated with appropriate setback, architectural guidelines, and ultimately appropriate landscaping and lighting.
Open Space	The management of open spaces within the development, along with fencing requirements and controlled ecological burning addressed in the EMP. Corridor connectivity with neighbouring open space areas addressed through the faunal and biodiversity impact assessments.

11 PUBLIC PARTICIPATION PROCESS

Section 41 in Chapter 6 of regulation 982 details the public participation process that has to take place as part of an environmental process. The Environmental Process for the proposed development intends to **comply** with the public participation process (PPP) requirements as stipulated in the Regulations.

- The pre-application scoping report was advertised in the *Mossel Bay Advertiser* on 21 January 2022. The comment period extended from 22 January 2022 till 21 February 2022.
- Written notifications were sent to potential interested & affected parties via email and post.
- The Mossel Bay Municipality supplied the contact details of immediate neighbouring property owners, whilst Cape EAPrac identified Organs of State and Authorities with a mandate to comment on the development application.
- Comments and requests for registration in response to the pre-application scoping report were received from:
 - Department of Environmental Affairs & Development Planning, George (comment received)
 - CapeNature (comment received)
 - Breede-Gourits Catchment Management Agency / Department Water Affairs (comment received)
 - Department of Forestry (comment received)
 - Mossel Bay Municipality (roads, stormwater, solid waste, disaster fire management) (comment received in response to Planning Application 2021)
 - Heritage Western Cape (provisional comment received)
 - Private – Gert Sieberhagen
 - Private – Charles Robertson
 - Private – Japie Kruger / NumNum Estate
 - Private – Rennie Oosthuizen
 - Councillor – Willem Botha
 - Private – Mornay Beukes / ATKV Hartenbos

A summary of their issues include the following **Issues & Response Report:**

Department of Environmental Affairs & Development Planning	
Evidence of historical agricultural activities must be provided to substantiate findings of the botanical specialist about diversity of vegetation.	Historical aerials reflected in DSR to show visible agriculture from 1940s and 1950s prior to establishment of Hartenbos Heuwels (dry land cultivation). No cultivation has since taken place on the property and the property does not contain agricultural resources.
Potential of increase of through traffic through residential area with village precinct set back from the main access – alternative is closer to the main access to enhance sense of place and reduce through traffic along residential areas when visitors enter.	The entrance of the property is a very long narrow shape which does not accommodate the village precinct, hence its position further inwards but as close as possible to the main entrance. The site has been selected with optimal access to residents.
Need for a tea room in the nature conservation area not justified.	Original Preferred alternative 2 (Aug 2022) has been amended to exclude this tearoom and only allow for tea rooms in the private open space areas interspersed with the residential development nodes.
Management and maintenance of the conservation open space areas must be detailed and the layout practicability of the development in relation to the conservation areas must be detailed.	Alternative 3 incorporates design and operational alternatives allowing controlled faunal gates to be open during the day time whilst still enabling small faunal species movement during night times. These faunal gates are positioned to align with existing internal conservation areas linking to the adjoining municipal conservation area.
Placement of apartments (3-storeys) along the ridgeline is of concern.	Three storey buildings have been reduced to two storey building to mitigate potential visual impact and better align with applicable guidelines for ridgeline development in the Western Cape.
Protection measures and ecological burning regimes must be detailed for conservation area.	Specialists have expand on these measures as part of their detailed assessments and more details provided in the EMP.
Insufficient information is available about the proposed telecommunications tower.	The preferred alternative has been amended to exclude this aspect since insufficient information is available about design specifications, site location and purpose.

<p>Stormwater management plans must be detailed.</p>	<p>Civil engineers have consulted with the freshwater specialist to inform the stormwater management plan. The water use license considers the structures and outlets towards the on-site watercourses. Detailed aquatic assessment have considered the stormwater management plan and it is deemed acceptable with low risk to aquatic features.</p>
<p>Faunal study time of site assessment (2018) questioned and outdated SDP considered.</p>	<p>Specialist appointed for initial study was unavailable at the time when the report was updated to comply with the Specialist protocols. Dr vd Vyfer from Chepri Consulting provided additional information after having visited the site in 2021. Dr Jonathan Conville has reviewed the original faunal reports and compiled the detailed impact assessment.</p>
<p>Concerned about landscape connectivity as highlighted by faunal specialist and how development will fragment largely intact habitat.</p>	<p>Specialist has identified these key aspects and confirmed through detailed impact assessment that the provision for operational faunal gates and design measures in the fences at these gates will ensure long-term connectivity.</p>
<p>Botanical assessment conducted site inspections in 2017 only. Reporting must expand on succession since historical agriculture and recent fires and to identify areas with conservation value from succession.</p>	<p>Botanical specialist has conducted multiple site inspections at this property over many years (from 2006 till 2022) and know and understand the property well. He also relied on additional site information from follow specialist Nick Helme.</p>
<p>SDP reflected in the butterfly study is different to the preferred SDP.</p>	<p>The initial site plan provided to specialists did not account for any sensitivity criteria. Specialists combined a constraints map to identify 'developable areas' and the preferred site plan was developed to avoid the sensitivities include the butterfly reserve area. Due to multiple sensitivity conflict this initial SDP is not deemed feasible and was not assessed further although some specialists did refer to it as their point of departure.</p>
<p>Must understand how the SDP accommodates the recommended fire buffers.</p>	<p>The preferred SDP already accommodates the recommendations made by the fire specialist that informed the scoping phase. Fire breaks will be 'fire' landscaped and fire breaks will be maintained along</p>

	development/conservation area contact areas.
Fire Management Plan must be expanded and updated to reflect an alien clearing plan and firebreak management as well as ecological burning requirement programme that must form part of the EMP.	The EMP will contains the necessary information on alien management and ecological burning of the conservation areas.
Context and layout highlight pertinent visual aspects that require more detailed assessment. Visual specialist must demonstrate how the Visual Assessment Guideline will be incorporated into the assessment.	Visual impact assessment detail potential visual intrusion and mitigation measures.
Apartments (3-storeys high) could potentially result in less visual intrusion if positioned lower down on the site instead of on the ridgeline.	Three storey structures have been reduced to two storey structures and assessed as the preferred alternative.
Plan of Study must include a further alternative to consider all of the above matters.	Alternative 3 has been introduced as the preferred alternative.
CAPE NATURE	
Vlok (2014) indicates the area as having Endangered Groot Brak Dune Strandveld according to the threatened ecosystem gazette. The draft ecosystem listing (updated) rates it as Vulnerable. This vegetation type is highly transformed and very little is formally protected. According to the NBA the vegetation will be classified as Critically Endangered Mossel Bay Shale Rensoterveld which is one of seven high risk vegetation types with a conservation target of 27% and it not protected.	The botanical specialist, who also conducted the biodiversity assessment, deems the vegetation and habitat type to not be sensitivity and indicates that at best the area should be allocated a classification of environmental support area (ESA).
Specialist has recommended that the area be mapped as Ecological Support Area instead of Critical Biodiversity Area with objectives to restore and manage the natural environment and minimise impact on ecological processes and to allow for faunal movement. The CBA status must be reported to CapeNature for verification.	Recommend that an application be made for the site to be excluded from the allocated CBA status.

Layout must be guided by the WCBSP with regards to its objectives and protection of ESAs.	Noted.
Renosterveld classified as the dominant vegetation type with species that can be limited in extent due to the microclimate and having low sensitivity where the development footprint is proposed whilst the more sensitive grassy fynbos falls within the proposed conservation area (confirmed by both McDonald and Helme).	Development footprint has been focussed on the less sensitive areas with limited development (services for limited stormwater only) extending into the higher sensitive areas.
No plant species of special concern noted by Helme.	Noted.
Search and Rescue must be implemented and used for rehabilitation purposes.	Noted for incorporation into the EMP.
Endangered species may not be picked or removed without the necessary Conservation Permits which will also ensure that rescued material is accounted for.	Noted and stipulated in the EMP.
CapeNature supports the complication of an alien clearing and monitoring plan and must include a suitable map to illustrate the current extent of alien vegetation that must guide rehabilitation, must show areas cleared of alien species and recommend suitable rehabilitation species, include timeframes and methods for clearing and a vegetation map illustrating the extent of existing vegetation on the current property. Preferably a buffer of 50m around the site must also be covered in the alien management plan.	The EMP includes a section on invasive alien vegetation reflecting CapeNature and specialist inputs.
The use of pesticides or herbicides must include measures to minimise spray drift to neighbouring indigenous vegetation.	Noted and incorporated into the EMP with alien management.
Fire regimes must be maintained and managed in the landscape with fire intervals between 10-15 years. Fire breaks must be considered as part of the development footprint and compilation of a Fire Management plan is supported that must include ecologically acceptable fire regime.	EMP incorporates the recommendations and details fire management of the conservation areas of the development.

Agrees with freshwater specialist on recommendations for buffers.	Noted. WULA in process.
Butterfly reserve must be a No-Go area.	The area will be protected, however it is likely that visitors/residents will have controlled access to benefit from the conservation value of the reserve.
Recommend that the applicant consider a Biodiversity Stewardship for the remaining natural areas to ensure ecological connectivity.	Noted and recommended as part of the EMP and EIR.
Concerned that no ecological corridors are included to the neighbouring conservation area which will result in fragmentation and loss of habitat. CapeNature recommends including ecological corridors that must not be compromised.	The areas indicated as natural to the east of the property are privately owned with zoning rights for development. The only feasible open space linkages that will have long-term benefit are to the neighbouring Municipal Conservation Area. Operational alternatives of allowing designated faunal gates to link the internal conservation area with the neighbouring municipal conservation area have been incorporated in Alternative 3. Faunal design for night time movement will also be implemented at these points.
DEPARTMENT OF FORESTRY	
Indigenous coastal forest patches/indigenous and protected trees must be surveyed and the design must accommodate these as no-go areas.	Design completely avoids forest patches and protected trees that occur within the higher sensitive, lower lying areas of the property.
HERITAGE WESTERN CAPE	
A detailed integrated heritage impact assessment must be undertaken that must include an archaeological, palaeontological, visual and social historical study.	Detailed impact assessment studies on these disciplines have been undertaken and was used to inform the Draft Impact Assessment Report.
BREEDE-GOURITS CATCHMENT MANAGEMENT AGENCY	
Initially General Authorisation require, but since changed to full Water Use License Application due to proximity to on-site wetlands.	WULA application has been submitted and 60-day commenting period for this application is running concurrent with that of the DSR.
MOSSEL BAY MUNICIPALITY	

Electrical supply is available from the existing 11kV overhead line and 66/11kVA substation.	Noted.
Upgrades to Louis Fourie as per TIA must be implemented with the understanding that these upgrades are linked to existing/previously approved developments such as Outeniquasbosh and Renosterbos Estate.	Noted.
Waste management on the site must adhere to the Municipality's Community Service specifications and standards.	Noted.
Fire Services do note that fire risk will be reduced among vegetation once the estate is completed.	Noted.
GERT SIEBERHAGEN	
No indication is given of the route that construction vehicles will utilise to limit use of the internal roads in Hartenbos Heuwels.	Access from Louis Fourie via Boekenthout is the shortest route with least crossing through Hartenbos Heuwels having roads that are more windy.
Upgrade of Boekenhout and Geelhoutstreet intersection is not mentioned as it will handle more traffic but is already unsafe.	The TIA refers to upgrades of the Louis Fourie intersection/Boekenhout and upgrade of the R102/Oudtshoorn Road. Council has accepted the outcome of this TIA accordingly.
Design of roads (geotechnical specification) and life cycle projection is important because it is a coastal area (wet) thus cement stabilised granular layer work must be included in the design to ensure a 10-15 year life cycle for roads.	All Class 4 Roads have sufficient geometrical design according to the Traffic Engineer. Condition of roads utilised for construction traffic must be recorded and maintained to ensure that there is no deterioration in road surface condition.

Of importance is that on 26/11/2021 Breede-Gourits Catchment Management Agency (BGCMA) in response to consultation with Dr Justine Ewert-Smith (freshwater ecologist) and the necessary Risk Matrix, confirmed that the development would not require a Water Use License (WULA). As a result, the commenting period on the pre-application scoping report was confirmed to be 30-days.

In response to the pre-application scoping report the BGCMA amended their initial recommendation for a General Authorisation (GA) requesting instead that a WULA be undertaken (31/01/2022).

This decision reversal resulted in additional consultation with the BGCMA to determine the reasoning and explain the implications in terms of the environmental application process.

- Meeting was held with BGCMA in Worcester on 5 May 2022;
- Follow-up site inspection on 30 June 2022;
- Confirmation from BGCMA on 25 July 2022 that they do not require the Draft Scoping Report to also be available for a 60-day period (the 30-days of the pre-application scoping report and the 30-days for the draft scoping report is sufficient given the late change in BGCMA's requirement for a WULA, whilst the WULA is still advertised for 60-days).

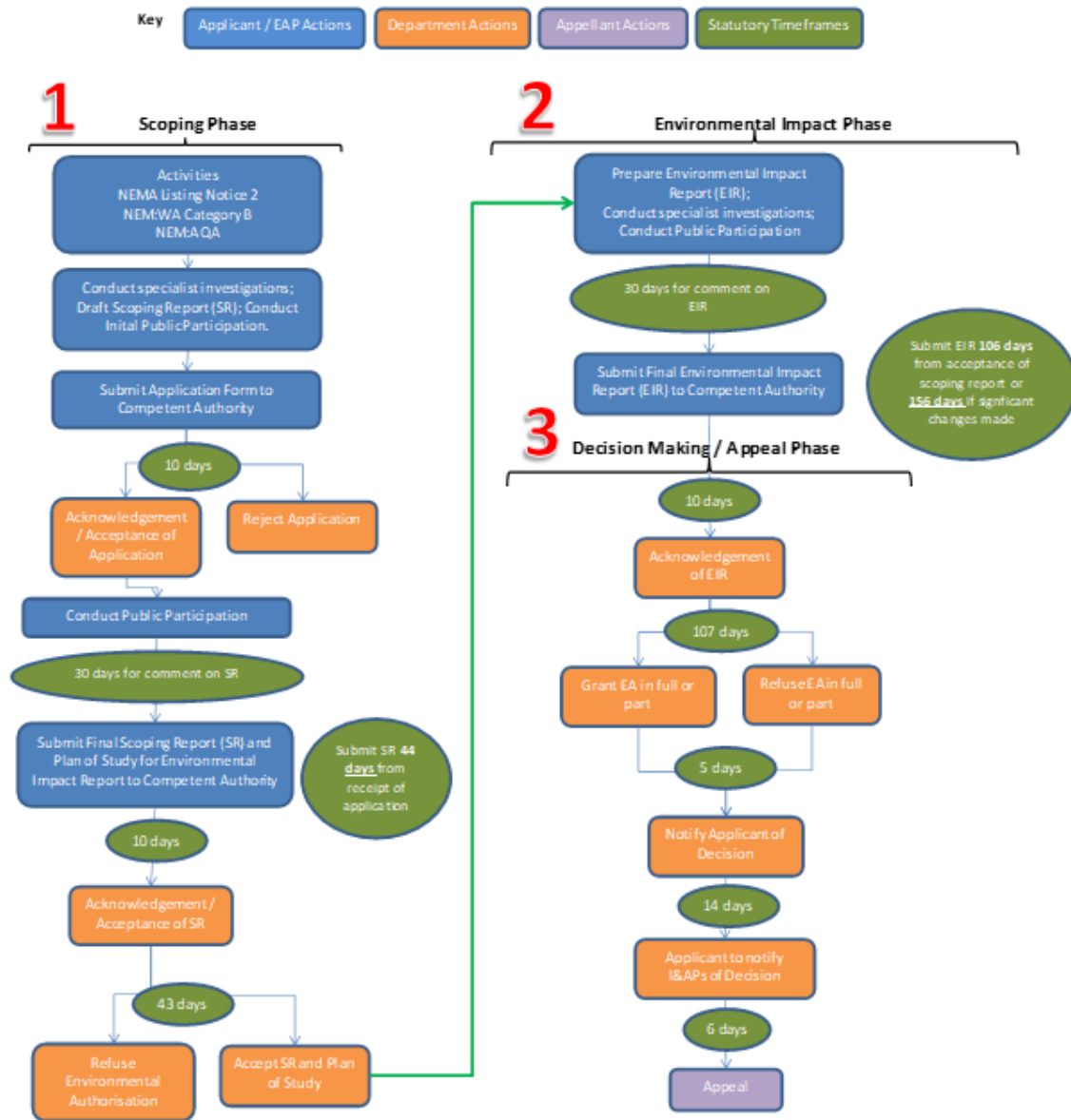
Due to the fact that the pre-application scoping report was available for a 30-day period and was is the draft scoping report, the BGCMA confirmed that they do view that as sufficient in terms of the environmental process. The WULA was advertised for a period of 60-days running in parallel with the commenting period of the draft scoping report. The Draft Scoping Report was advertised as follows:

- *Mossel Bay Advertiser* on 26 August 2022. The comment period extended from 1 September – 3 October.
- Written notifications were sent to registered interested & affected parties via email and post.

It is submitted that the provisions of the POPIA legislation prohibits the distribution of private contact details. As such, the stakeholder registered for this application process will not be published for reports that appear in the public domain.

The Draft Impact Assessment Report is available for a 30-day commenting period extending from **23 January 2023 – 22 February 2023**. All submissions received in response to this report will be considered and must be reflected in the Final Environmental Impact Report for consideration and decision-making by the Department of Environmental Affairs & Development Planning who is the Competent Authority.

The process for the full Scoping & Impact Assessment was followed as per the Environmental Regulations that stipulates the following:



12 NEED AND DESIREABILITY

In keeping with the requirements of an integrated Environmental Impact process, the DEA&DP *Guidelines on Need and Desirability (2010 & 2011 & 2013)* were referenced to provide the following estimation of the activity in relation to the broader societal needs. The concept of need and desirability can be explained in terms of its two components, where *need* refers to *time* and *desirability* refers to *place*. Questions pertaining to these components are answered in the Sections below.

12.1.1 Need (time)

Is the land use considered within the timeframe intended by the existing approved Spatial Development Framework (SDF)? (I.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP?)

The site falls within the Mossel Bay SDF urban edge. The previous as well as the 2022 SDP incorporates this site into the urban edge and designates it for urban expansion. It form part

of the historic Hartenbos Heuwels township development albeit still vacant. The condition of the site however has restored to a natural state mostly and as a result any township development will result in impacts that cannot all be avoided, hence it must be mitigated.

The only way to avoid some impacts would be to allow no development on the site which does not come without impacts of its own, but which is deemed to be an unreasonable and unfeasible alternative.

Should the development occur here at this point in time?

The site borders the Hartenbos Heuwels residential area. Although it borders vacant private properties to the East showing it (the site) to be mostly surrounded by natural areas, these private properties are already zoned and earmarked for township development. Thus the inclusion of this site within the urban edge is not deemed leap frogging as it already borders existing erven and township development.

Services are readily available for water, electricity and the site has an existing access. The property is the last remaining vacant area situated between the Municipal Sonskynvallei Conservation Area and Hartenbos Heuwels whereas the conservation area is the furthest edge the town can grow to.

The development itself (within the greater Erf 3122) has been informed by numerous specialist studies out of which a detailed constraints analysis was developed to help guide the development process and thinking.

The preferred alternative acknowledge and adheres to the specialist constraints and remains within the designated development footprint area, leaving more than half of the site which is deemed sensitive, as undeveloped conservation area which (through managed faunal corridors) will link to the remaining, protected natural areas within the Municipal Conservation Area to the North, South and West.

With development being restricted to the specified development constraints area, development can be considered as proposed.

Does the community / area need the activity and the associated land use concerned?

Stakeholders that register for EIA processes typically do so because of concerns they may have about a particular activity. It is not often that stakeholder who favours an activity of this nature, will register and/or participate in the process.

As a result, it is often found that the outcome of public participation reflects a negative approach to the proposed activity.

Negative impacts are anticipated and therefore the need/desirability of the proposal is likely to be questioned by participating stakeholders. The outcome of the environmental impact assessment will help highlight the perception and impression of stakeholders about the proposed activity.

Responses to the pre-application scoping report, as well as the draft scoping report, have not indicated any notable objection to the proposed development.

It is noted that there is a rising demand for secure developments in the Garden Route and for those interested in such developments, the activity is most likely to be deemed necessary.

Are the necessary services with adequate capacity currently available?

Consultation between the electrical engineers, civil engineers and traffic engineers have confirmed that Municipal services are available and surplus capacity is sufficient.

Upgrades to intersections identified in the TIA that is aligned with the Louis Fourie Corridor master plan, will help prevent unwanted traffic congestion as a result of an increase in vehicles.

Service connections can be made to water, electricity on the site without the need for external bulk service upgrades.

The Municipality must provide finale written confirmation of all services availability to inform decision-making.

Is this development provided for in the infrastructure planning of the municipality?

Yes. Because the site forms part of the greater Hartenbos Heuwels residential development (Extension 4), it has remained on the Municipality infrastructure planning.

Is this project part of a national programme to address an issue of national concern or importance?

No.

12.1.2 Desirability (place)

Is the development the best practicable environmental option for this land / site?

Reasonable/Feasible alternatives have been considered and although Alternative 1 (Status Quo) would result in the site not being utilised for formal township development, it is not feasible as an agricultural unit either. Whilst the clearing of invasive alien vegetation, boundary control to address security risks and ecological burning of the site are all actions that can help improve the site's overall sensitivity, these actions will not be implemented unless it is done under Directives from various Authorities who can instruct land owners on these matters. These actions require capital investment and considering that the site has been earmarked for urban development for nearly ten (10) years, the landowner is highly unlikely to spend funds on the correct land management of the Status Quo option.

The lack of ecological burning, potential for continued invasive alien invasion, continued uncontrolled access to the land with both vehicles and by foot, will affect both the areas deemed to be sensitive, as well as those less sensitive with invasive alien invasion most likely to affect the highly sensitive lower lying slopes and watercourses, whilst wildfires will result in unwanted fires that will continue to deteriorate the higher lying, less sensitive plateau.

The alternative(s) of urban development on a portion of the property, considering its inclusion in the urban edge and designation for township development, will result in environmental impacts. These have been identified and assessed throughout this assessment process and it is evident that unlike impacts associated with the Status Quo, impacts will be limited to the

least sensitive portions of the site, whilst benefits through financially supported initiatives generated by the development and long-term levees, will improve management and the condition of the remaining conservation worthy areas of the site.

Would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?

No.

The Mossel Bay SDF (updated June 2022) continued to include this property within the urban edge and designates it for urban expansion.

Would the approval of this application compromise the integrity of the existing approved environmental management priorities for the area?

No.

The Municipality's neighbouring conservation area presents an opportunity to align management objections for the site as part of a greater conservation area with linking corridors.

Development of the site will not compromise the conservation outcomes of the neighbouring municipal conservation area because it does make allowance for faunal movement through controlled corridors, as well as for fire breaks and continued ecological burning.

Although indicated as a CBA, the footprint of the development would be restricted to substrates that were historically altered by farming and wild fires. It now support substantially altered and degraded renosterveld within the area demarcated as the development footprint. The intrinsic properties of undisturbed Mossel Bay Shale Renosterveld that does occur outside the development envelope, have largely been lost. According to the specialist, the actual loss of any remaining **undisturbed** renosterveld/areas with notable ecological sensitivity, would be limited.

Despite virtually the entire area of Erf 3122 being classified as CBA1 in the WCBSP (2017), it has been determined from field studies (ground-truthing) by several suitably qualified and experience specialists, that the **development area/envelope specifically** is occupied by renosterveld that should, at best be re-classified as ESA1. The renosterveld in the proposed development area has low botanical constraints and apart from the occurrence of the rare butterfly, *Aloeides trimeni southeyae* (Lycaenidae) and Denham's Bustard, it does not support a diverse and important fauna.

Do location factors favour this land use at this place?

Yes.

The site is in proximity to town. Availability of existing services and access provisions the site is feasible as a potential site for township development. It is also the last vacant property of this scale situated between Hartenbos Heuwels Extensions 1,2 & 3 and the municipal

conservation area which is the furthest the town can develop in accordance with the Mossel Bay SDF.

How will the activity or the land use associated with the activity applied for, impact on sensitive natural and cultural areas?

Alternative 3 has been informed by various specialist investigations. Each discipline provided input as to the areas that must be avoided and/or buffered. The development footprint has taken the specialist recommendations into account.

Alternative 3 is focused on the least sensitive areas of the site and the remaining open space areas contain the more sensitive areas that will be retained as conservation areas to be actively managed.

How will the development impact on people's health and wellbeing?

Development of the site is unlikely to impact negatively on the health and wellbeing of people in the immediate vicinity. Indirect impacts such as traffic (through residential areas) may cause increased traffic congestion, but the type of development proposal is unlikely to detract from the greater character and sense of place of the area in general.

Because the development will be done in four (4) phases, the impacts typically associated with a residential development of this scale and nature, will happen over an extended period of time which does help to reduce the inconvenience of ongoing construction.

Will the proposed activity or the land use associated with the activity applied for, result in unacceptable opportunity costs?

Currently the next best land use alternative to the proposed development is the no-go alternative (i.e. no development taking place and the site remaining vacant with no particular land use).

However, there is a need for job opportunities and housing at throughout the Southern Cape region that could be argued as more demanding than the sense-of-place / character / conservation potential of an area. NEMA specifically includes the relevance of social and economic impacts and the loss of such opportunities should the site remain vacant with no particular land use, is deemed cost factor.

The spatial context of the site and its designated land use for residential/urban development over years have created an expectancy and potentially an acceptance amongst people who are aware of the prominence of a spatial development framework.

The economic benefits and opportunities that the proposed development holds for the landowner and the local economy of the municipal area cannot be recovered from the current land use. Furthermore it is noted that without private initiative and/or funding, the local Municipality is also highly unlikely to invest money in purchasing the site for incorporation as part of the neighbouring conservation area.

Will the proposed land use result in unacceptable cumulative impacts?

The loss of habitat in an area with remaining natural vegetation is a cumulative loss of a negative nature that follows on all urban developments along the fringes of built-up areas.

A balance of conservation outcomes and development potential will be achieved, to avoid unacceptable outcomes and impacts and the EIA process is aimed at determining such.

13 ASSUMPTIONS AND LIMITATIONS

This section provides a brief overview of *specific assumptions and limitations* having an impact on this environmental application process:

- It is assumed that the information on which this report is based (specialist studies and project information, as well as existing information) is **correct, factual and truthful**.
- It is assumed that all the relevant **mitigation measures** and agreements by specialists will be implemented in order to ensure minimal negative impacts and maximum environmental benefits.
- It is assumed that the remaining **private properties to the East of Erf 3122** will be developed in future, effectively cutting off the site from the remaining open space areas within Hartenbos Heuwels therefore justifying the approach of focussing on corridors and linkages with the neighbouring municipal Conservation Area to the North, West and South.
- It is assumed that Stakeholders and Interested and Affected Parties notified during the public participation process will submit all relevant **comments within the designated 30-days** review and comment period, so that these can included in future documentation associated with the Environmental Process.
- The **Planning Application** submitted in June 2021 will follow on the outcome of the EIA process.
- It is assumed that HWC will accept the **HIA**.
- It is assumed that BGCMA will approve the **WULA**.

14 IMPACT ASSESSMENT OF SPECIALIST DISCIPLINES

At the time of conducting the initial site screening for the ENTIRE study site, the theme sensitivities as per the National Screening Tool was indicated as follow:

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme			X	
Animal Species Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme		X		
Defence Theme				X
Paleontology Theme	X			
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Following the outcome of the various specialist impact assessments, assessing the potential impact of the development within a defined development envelope/footprint, the sensitivity ratings for all of the sensitivity themes have been verified as not exceeding MEDIUM in any one field.

For ease of easy references, impacts are visually reflected using the following colour scheme².

All positive impacts (regardless of their significance)

Neutral or Negligible negative impacts

Very Low and Low negative impacts

Medium negative impacts

Medium – High, High and Very High negative impacts



It is must be noted that overall impact assessments are provided in the following section of this draft EIR report. Some specialist ratings do require them being read in context of the full specialist report. Readers are therefore requested to study the attached specialist assessment reports that are attached as appendices where more details can be found on each impact rating and significance.

14.1 TERRESTRIAL BIODIVERSITY

Dr Dave McDonald from **Bergwind Botanical Surveys** conducted the Biodiversity Impact Assessment and completed his assessment in January 2023 following completion of the Botanical Impact Assessment in 2022. The biodiversity assessment has been informed by the botanical, faunal, butterfly as well as aquatic studies undertaken to inform this application. Dr McDonald holds a BSc. Honours and Masters Botany and a PhD degree in Botany Ecology where he specifically studied Cape fynbos ecosystem. He has practiced as botanical ecologist for more than 40 years and has completed over 600 specialist botanical/ecological studies. Dr Mcdonald is SACNASP register as an Ecologist (Reg Number 400094/06).

With regards to the comparative assessment of alternatives, Dr McDonald is of the opinion that the difference is marginal ito biodiversity (although noting improved faunal outcomes), since the development footprint has not change significantly.

	WITHOUT MITIGATION		WITH MITIGATION	
	Construction	Operation	Construction	Operation
ALTERNATIVE STATUS QUO 1 -	Very Low Negative (construction is not	Very Low Negative	N/A	N/A

² Where specialist ratings fall across 2 of the groups, the worst case is reflected in the quick reference.

	applicable here <i>per se</i>	(operation not applicable here <i>per se</i>)		
ALTERNATIVE 2 – SCOPING SDP	Medium Negative	Very Low Negative	Very Low Negative	Very Low Negative
ALTERNATIVE 3 – PREFERRED SDP	Medium Negative	Very Low Negative	Very Low Negative	Very Low Negative

In determining the site ecology, Dr McDonald considered, amongst others, the recovery rate of an area along with the improvement of species composition. In the case of the Hartenbos Garden Estate site (most notably the less sensitive areas on the plateau) the vegetation has not recovered over a period spanning nearly 20 years with historical agriculture and infrequent wild fires having impacted negatively on the recovery rate, the functionality of the receptor functionality and he found a low moderate likelihood of impacted species returning to the site should disturbance or impacts be removed.

The Site Ecological Importance (SEI) of the renosterveld areas of the **development footprint** has thus been determined as **LOW** (*which agrees with the sensitivity given in Section 10. Botanical Constraints*), with the SEI of the fynbos (grassy fynbos) areas determined as **MEDIUM**. This analysis is for the **habitat**.

The conservation importance (CI) of the 'butterfly conservation area' is **HIGH**, with the functional integrity (FI) **MEDIUM**, giving a **MEDIUM** Site Ecological Importance (SEI). The receptor resilience (RR) is **MEDIUM**. Consequently, taking the above SEI for habitat as medium, together with the result of the analysis for *Aloeides trimeni southeyae*, the multi-taxon SEI in this instance is **MEDIUM**.

Considering direct impacts the 'No Go' (Alternative 1) would result in no change to the *status quo*. In this case the target area would be left undeveloped with no management and scant protection. It is speculative to suggest that the habitat would improve or degrade but it is possible that it may degrade in future due to continued invasion by alien invasive plants which the owner has not managed (indicative of the likelihood of future management). Uncontrolled fires are likely to result in problems due to a lack of implementation of ecological burning to control aging biomass. This is evident from at least two large scale wild fires that occurred over the past ten (10) years, specifically affecting this site.

On the other hand, if left undeveloped, the ecological processes currently in play on the site would continue unhindered except if there were negative influences such as alien invasion, lack of suitable fire management and indiscriminate use by trespassing people with vehicles.

To determine how the ecology would be affected would take concerted research investigation over many years, as such and with no valid comment that can be put forward as to the future (management) of the site, certain informed assumptions must be made.

Given the location of the site (close to other Hartenbos suburbs), the already invading *Acacia* spp. and *Hakea sericea* and the risk of spread of wild fires either from the site to the neighbouring residential areas or vice versa is realistically high. Uncontrolled accessibility to

pedestrians, vehicles, bicycles and motorcycles lead to uncontrolled erosion, illegal dumping and most likely the indiscriminate starting of fires on the property. Poaching of small mammals and reptiles is increasing throughout the country and there is a chance that such activities could take place as has happened on the adjacent Mossel Bay Municipality 'conservation area' that is not being managed adequately. It can be reasonably assumed that these negative factors could occur if the 'No Go' or *Status Quo* (Alternative 1) is followed. Assuming the above, the 'No Go' alternative could be **Medium Negative**.

Direct impacts of Alternative 2, the alternative assessed during the Scoping Phase, would be **Medium Negative** without mitigation in the construction phase and **Low Negative** with mitigation. The direct impact of the operational phase would be **Low Negative** without mitigation and **Very Low Negative** with mitigation.

Alternative 2 equates to the assumed impact of Alternative 1, the 'No Go' option. No irreplaceable resources would be lost but once the development is in place, any direct impacts would be irreversible. The impact on the vegetation, habitat and biota present would not be much different between Alternative 1 and Alternative 2 considering that the **Status Quo** will have an 'overall' **impact extending to both the low as well as the high sensitivity areas without mitigation**, whereas the **development alternatives** do introduce a **restriction of negative impacts** that may affect the **internal conservation areas** (approximately 50% of the site deemed to have high conservation value), in addition to notable positive impacts that will result from the direct introduction of management through compliance with the Environmental Authorisation, Environmental Management Plan and environmental monitoring and control services that are not in place under the Status Quo alternative.

Lowering of the height of the village precinct (for visual impact reasons) in Alternative 3, would have no effect on the footprint as relevant to the habitat and biological organisms. However, the improvement in operational faunal corridors and provision for measures that will improve movement of wildlife when the 'faunal gates' are closed is deemed positive.

There would be some difference between the impacts of Alternative 2 and Alternative 3 as they pertain to the movement of wildlife, but not the habitat. The only difference is that there would be improved operational management of corridors for movement of fauna between the internal conservation areas and the surrounding municipal conservation area. This difference, however, is not easily assessed as it is assumed that the corridors, opening of gates during the day and installing measures to improve animal movement at night (when the faunal gates are closed) will be necessary and effective for connectivity of habitat. The latter mitigation must be implemented on the assumption of there will be animal movement but this is not based on observations at the site.

Consideration must also be given to the possibility that local fauna may find more favourable refuge in the internal conservation area of Hartenbos Garden Estate for the lack of potential poaching on the open neighbouring municipal Conservation Area.

Therefore the impacts provided between alternatives are much the same with respect to the habitat with its resident biota i.e. the terrestrial biodiversity, with the post-mitigation for the construction phase being **Low Negative** and the post-mitigation for the operational phase being **Very Low Negative**.

Recommended mitigation measures:

- (1) *The mitigation measures necessary would be the relocation of geophytes from the development footprint prior to site clearing of each phase. Ideally the bulbs must be lifted when they are dormant (summer) but that would mean traversing the entire area of the proposed development in the preceding winter and marking every occurrence of these plants. A more practical approach would be to unearth the bulbs during the construction phase and to then relocate and plant them soon after removal. (Note: A clearing permit as well as a permit for removal of and relocation of geophytic plants would be required from Cape Nature.)*
- (2) *The setting aside / demarcation of the butterfly conservation area prior to construction commencing in the area i.e. Phase 1 with no unauthorised access into this area during construction.*
- (3) *All construction activities must take place within the footprint of the development. Areas outside the development footprint (except for access roads) MUST be avoided. Any areas within the development footprint that will not be used as development later must be rehabilitated with natural vegetation native to the area.*
- (4) *Preferably undertake clearing of vegetation during the dry season.*
- (5) *Keep vegetation low along the fire breaks but not completely eradicated.*
- (6) *Only clear vegetation where absolutely necessary.*
- (7) *The butterfly reserve must be included in the management of the development. It must be the responsibility of the Applicant / Managing Agent to ensure continuous alien clearing and controlled ecological burns are carried out in this area.*
- (8) *A butterfly survey within the butterfly must be carried out by a suitably qualified specialist once construction of Phase 1 is complete. Depending on the findings of the survey (compared to the findings from this Impact Assessment) the specialist must make recommendations for any repeat surveys to monitor the health with the identified butterfly species.*

14.2 FAUNA

The faunal impact assessment was undertaken by Dr Jonathan Colville who is SASCNASP registered as an Ecologist (Reg Number 134759) and he holds a PhD in Zoology.

Dr Colville reviewed both Simon Todd, as well as Marius van der Vyfer's faunal scoping reports as well as the original faunal report by SEF done for the previous 2014 Impact Assessment.

CONSTRUCTION PHASE		
	PREFERRED ACTIVITY & LAYOUT ALTERNATIVE (Proposed development activities within development envelope)	NO-GO ALTERNATIVE (No development, <i>status quo</i>)
Potential impact and risk:	FAUNAL IMPACTS: Disturbance and habitat destruction associated with removal of natural vegetation, soil disturbance and compaction.	
Nature of impact:	Loss of local populations of faunal SCC.	Loss of local populations of faunal SCC through continued alien plant infestations.
Extent and duration of impact:	Local and Short term.	Local and Long term.
Consequence of impact or risk:	Loss of populations of faunal SCC; Restrict movement of fauna through ecological corridors; Fragmentation of sub-populations of butterfly SCC across southern Cape habitats.	Loss of sub-populations of faunal SCC; Further fragmentation of sub-populations of butterfly SCC across southern Cape habitats.
Probability of occurrence:	Medium probability	High probability
Degree to which the impact may cause irreplaceable loss of resources:	Medium-High	High

CONSTRUCTION PHASE		
	PREFERRED ACTIVITY & LAYOUT ALTERNATIVE (Proposed development activities within development envelope)	NO-GO ALTERNATIVE (No development, <i>status quo</i>)
Degree to which the impact can be reversed:	Low	High
Indirect impacts:	None identified	None identified
Cumulative impact prior to mitigation:	Medium (-)	High (-)
Significance rating of impact prior to mitigation (e.g., Low, Medium, Medium-High, High, or Very-High)	Medium (-)	High (-)
Degree to which the impact can be avoided:	Medium	High
Degree to which the impact can be managed:	Medium	High
Degree to which the impact can be mitigated:	Medium	High

Residual impacts:	Medium (-)	Low (-)
Cumulative impact post mitigation:	Medium (-)	High (+)
Significance rating of impact after mitigation (e.g., Low, Medium, Medium-High, High, or Very-High)	Medium (-)	High (+)

OPERATIONAL PHASE		
	PREFERRED ACTIVITY & LAYOUT ALTERNATIVE (Proposed development activities within development envelope)	NO-GO ALTERNATIVE (No development, status quo)
Potential impact and risk:	FAUNAL IMPACTS: Human disturbance and habitat loss associated with alien plants.	
Nature of impact:	Loss of local populations of faunal SCC; Disturbance and possible road deaths associated with vehicle movements.	Loss of local populations of faunal SCC through land cultivation and continued alien plant infestations.
Extent and duration of impact:	Local and Short term.	Local and Long term.
Consequence of impact or risk:	Loss of sub-populations of faunal SCC; Further fragmentation of sub-populations of faunal SCC across renosterveld habitats.	Loss of sub-populations of faunal SCC; Further fragmentation of sub-populations of faunal SCC across renosterveld habitats.
Probability of occurrence:	Low probability	High probability
Degree to which the impact may cause irreplaceable loss of resources:	Low	High
Degree to which the impact can be reversed:	High	High
Indirect impacts:	None identified	None identified
Cumulative impact prior to mitigation:	Medium (-)	High (-)
Significance rating of impact prior to mitigation (e.g., Low, Medium,	Low-Medium (-)	High (-)

OPERATIONAL PHASE		
	PREFERRED ACTIVITY & LAYOUT ALTERNATIVE (Proposed development activities within development envelope)	NO-GO ALTERNATIVE (No development, status quo)
Medium-High, High, or Very-High)		
Degree to which the impact can be avoided:	Medium	High
Degree to which the impact can be managed:	High	High
Degree to which the impact can be mitigated:	High	High

OPERATIONAL PHASE		
	PREFERRED ACTIVITY & LAYOUT ALTERNATIVE (Proposed development activities within development envelope)	NO-GO ALTERNATIVE (No development, status quo)
	● Bird flappers for Denham's Bustard	
Residual impacts:	Low (-)	Low (-)
Cumulative impact post mitigation:	Low (-)	High (+)
Significance rating of impact after mitigation (e.g., Low, Medium, Medium-High, High, or Very-High)	Low (-)	High (+)

Relatively large areas of habitat (mostly natural vegetation) will be directly and negatively affected during the construction phase. According to Colville it should mostly have a localised impact on populations of the SCC and their long-term viability and persistence in the area.

The 'No-Go' or 'leave as is' option would potentially see the highly sensitive grassy-fynbos and drainage line/watercourse habitats of the project area becoming overgrown if no alien plant management plan is earmarked for future implementation. The encroachment of alien plants have significant long-term negative impacts and implications for faunal SCC. The development scenario that comes with mandatory mitigation measure of removal and future monitoring of these alien plants would help solve this issue.

The impact significance during the operational phase of the proposed development is considered LOW. Continued monitoring and removal of alien plants would, however, be a key mitigation measure to be continued after the construction phase.

One other important aspect to consider is the effect of Artificial light at night (ALAN), which can potentially have long-term negative impacts on local insect fauna (Deichmann *et al.*, 2021; Owens *et al.*, 2020; Stewart, 2021). The impact of ALAN during the operational phase of the project is therefore considered, particularly as the development envelope abuts areas of natural vegetation which currently appear to have little to no artificial lightening. Outside lights for the planned houses, village precinct, restaurant, clubhouse, sport facilities, and road lights that may be added, could also add to an overall negative impact on local insect faunas. There are several mitigation options to reduce the impact and attraction of artificial lights on insects.

Overall, the impact significance during the operational phase of the proposed development is considered LOW, particularly when mitigation is considered. It should mostly have a small and localised impact on populations of the faunal SCC and their long-term viability and persistence in the area. The use of artificial lights may extend the area of influence of the project site and mitigation measures have therefore been considered in this regard.

Although the development is considered of MEDIUM significance for the faunal SCC, it may become more significant if added to existing or future impacts from other activities in the area.

The proposed development will occur in a broader area within a mosaic of vegetation and habitat that is highly fragmented and disturbed.

Currently, it seems unlikely that the addition of the proposed developments will contribute to a high cumulative negative impact on the long-term viability of any of the populations of the SCC and their persistence: except possibly for the butterfly SCC, although creation of the butterfly reserve should mitigate against this. The creation of the butterfly reserve will also be beneficial for the Black Harrier.

Recommended mitigation measures will help to further reduced any cumulative negative impacts, particularly in terms of alien plant removal and monitoring. Removal and the long-term monitoring of alien plants could have a long-term positive impact offsetting any shorter-term negative impacts from the proposed development for certain faunal SCC.

Restoring and retaining parts of the Erf 3122 as natural vegetation and retaining ecological corridors to remnant natural vegetation that are currently connected to several sides of Erf 3122 would also have a positive conservation impact. In this regard, a compromise between

the loss of Denham's Bustard habitat in the low sensitivity plateau, with the creation of a sizeable butterfly reserve incorporating a potential Black Harrier breeding site, is considered for this development.

The current and future development of natural areas in and around Hartenbos would need to be considered in the broader context of conservation strategies around the identification and establishment of a network of protected areas to help offset the cumulative negative impacts of development on faunal SCC, such as Denham's Bustard and the butterfly *Aloeides trimeni southeyae*. Considering that the Mossel Bay Municipality is the owner of the large conservation area mostly surrounding the study site, ongoing cooperation between these land owner will be critical for long-term positive faunal outcomes.

Recommended mitigation measures:

- (1) *Butterfly reserve must be clearly demarcated and considered a no-go area.*
- (2) *Clearing of natural vegetation outside the permitted development footprint must be prevented or to be kept to a minimum where necessary.*
- (3) *The smallest possible working corridor, particularly along sensitive habitats, must be used.*
- (4) *No off-road driving may be allowed by construction vehicles.*
- (5) *All temporary/permanent fences to be erected must be of sufficient low height and mesh size to allow fauna (small rodents, antelope, etc.) to move freely through and to not act as a barrier to dispersal.*
- (6) *Any drainage/water run-off trenches required to be built alongside roads must be shallow and broad with low-angle sides (<30 degrees) so as not to trap fossorial invertebrates (e.g. dung beetles) and small vertebrates (e.g. snakes, tortoises).*
- (7) *Alien vegetation found on the project area must be removed by an alien plant clearing team during the construction phase; invasive alien plants are seen as a significant threat to faunal SCC (e.g. butterflies (Mecenero et al., 2013).*
- (8) *Buffer zones of ~ 50m must be used around drainage and watercourses.*
- (9) *A 5m buffer zone must be considered for any development close to the proposed butterfly reserve (the fenced acts as said buffer in Alternative 3).*
- (10) *Ongoing clearance of alien vegetation across the project area and rehabilitation to encourage natural vegetation to regenerate on the areas disturbed during construction and to restore and increase natural habitat for faunal SCC.*
- (11) *Fixtures on external lights to cover the light bulb and direct the light to where it is needed.*
- (12) *Use timers and sensors to control when external lights are on and to make lights motion activated.*
- (13) *Use coloured lights, such as long wavelength amber and red lights. Yellow illumination lights have also been shown to attract less moth specimens (Verovnik et al., 2015). Deichmann et al. (2021) recommend filtered amber LED lamps with no blue and minimal green light content to be used for outdoor lighted areas.*
- (14) *An outdoor lighting to be developed in conjunction with the final landscaping plan to include an overall reduction of nocturnal lighting. These additional plans to be incorporated into the EMP prior to finale approval thereof.*
- (15) *Speed bumps must be installed on all internal roads and speed limits and animal crossing warning signs must be erected, visible and enforced by the Applicant/Managing Agent.*
- (16) *Bird flappers on overhead electrical lines for Denham's Bustard.*
- (17) *The faunal gated areas must not have direct lights shining on them and the crossing areas (where animals must cross the road to make use of the faunal gates) must be clearly marked and preferably have distinctive paving to alert drivers at all*

times that they must drive slowly in these areas, especially at night time when nocturnal animals may make use of the faunal gates.

14.3 FRESHWATER / AQUATIC

Dr Justine Ewert-Smith from Freshwater Consulting conducted the aquatic impact assessment and facilitated the Water Use License Application (WULA). She holds a MSc as well as a PhD in Zoology: Freshwater Systems. She is registered with SACNSAP as an Ecologist (Reg Number 400746/15) as well as the South African Society of Aquatic Sciences. She has 23 years of experience as an aquatic scientist.

According to Ewert-Smith if unmitigated, the likelihood of **construction** related impacts to watercourses and wetlands, within close proximity to proposed new infrastructure, is MEDIUM – HIGH, particularly in the case of Seep F and watercourses H, I and J immediately north of main access to the site which drain these steep north facing slopes.

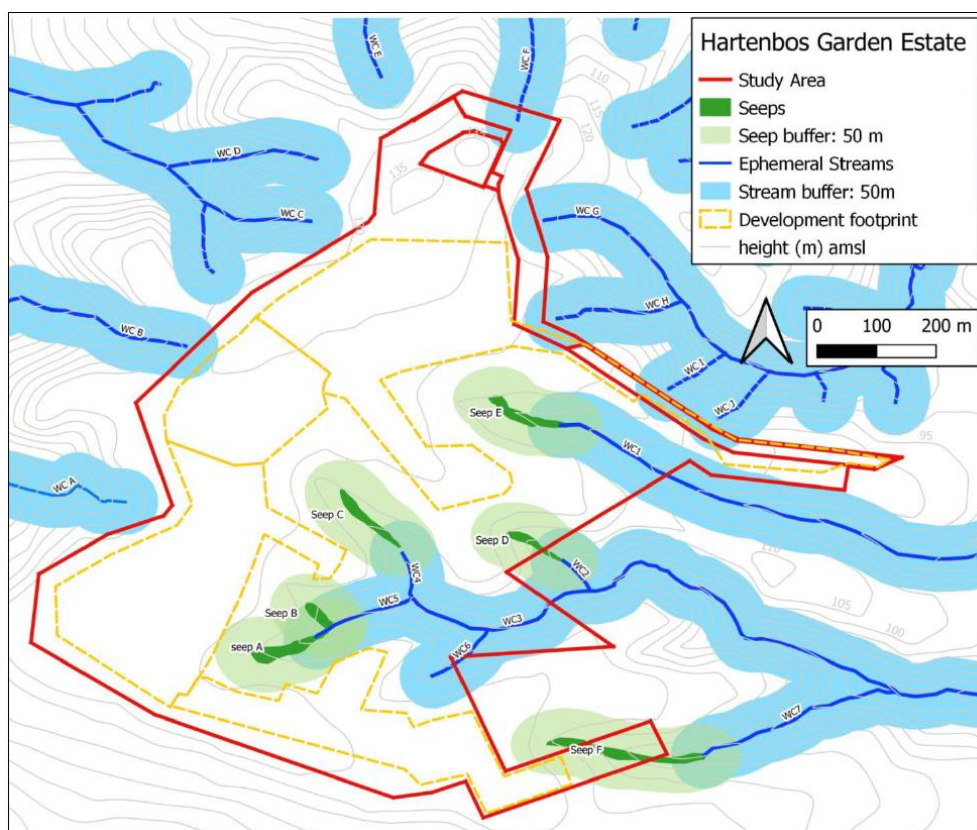


Figure 32: Identification of seeps and wetlands on the property for better interpretation of the aquatic impact assessment (Source: Ewert-Smith 2023).

Considering that all these habitats have a high ecological importance and sensitivity, and most are largely intact with few modifications, impacts on these features could be of MEDIUM-HIGH intensity without mitigation, depending on the nature of the activity.

While implementation of the recommended mitigation measures should effectively reduce the intensity of these impacts to low, adherence to these measures is often difficult to enforce and thus there is still some probability of occurrence. Nevertheless, based on the protocols provided, a LOW impact intensity would result in *negligible construction phase residual impacts after consideration of mitigation* for the construction phase.

The ephemeral seeps and watercourses within and surrounding the study area are particularly vulnerable to hydrological and water quality changes associated with catchment hardening

(Ewart-Smith 2017). Consideration of the sensitivity of these habitats to changes in the quality and quantity of runoff was taken into consideration in the design philosophy for the management of stormwater in the Civil Engineering Services Report (LJR Civil 2022) for the development. More specifically, design criteria included in the Stormwater Management Plan are based on the Water Sensitive Urban Design (WSUDS) principles which provide attenuation and promote infiltration. The design therefore includes “*well vegetated buffer strips, unlined grass channels with rock/subsoil drains (retention channels), and energy dissipaters*” (LJR Civil 2022). Also, detention structures at all outlets are proposed as a means of reducing the risk of erosion (LJR Civil 2022).

While these measures may minimise the risk of stormwater related impacts to freshwater ecosystems, there is still some possibility (albeit limited) that increased stormwater runoff could result in channel erosion, particularly during intense storm events. Considering the relatively steep topography of the study area and ephemeral/temporary nature, these systems are highly sensitive to changes in the nature and volume of runoff and thus prone to erosion. Erosion would lead to down-cutting and loss of in-channel habitat through unsightly donga formation and sedimentation of habitats further downstream. This would result in a long-term impact of HIGH intensity although with a LOW likelihood of the impact occurring due to design criteria included in the Stormwater Management Plan. It is therefore considered a **negative impact of overall MEDIUM significance**.

Besides the effect on receiving streams, increased stormwater runoff could result in an increase in the duration and frequency of saturation of wetlands that are temporarily saturated and naturally dry for extended periods. This may result in a shift in community structure of the natural vegetation with associated impacts to biotic integrity. All these ecosystem are however well buffered by setbacks, and thus the likelihood of the impact occurring is LOW. This impact is therefore considered a long term impact of MEDIUM intensity and is rated as a **negative impact of LOW significance**.

Stormwater runoff from gardens and landscaped open space can be rich in nutrients due to fertilisers and pesticides that may be used to manage these areas. Enrichment of seeps and watercourses could result in vegetation changes and associated loss of habitat integrity and biodiversity. This is considered a negative impact but of LOW intensity (due to provision of buffers) but with a distinct possibility of occurrence and is thus an **impact of MEDIUM significance** if not mitigated appropriately.

Description of impact		Extent	Duration	Intensity	Probability	Significance	Confidence
Activity: No development and thus no formal protection of natural ecosystems and management of alien invasion							
Ongoing invasion of watercourse and wetlands by alien vegetation and associated loss of habitat.	Without mitigation	Regional	Long term	L	Highly Probable	Medium	M
	With mitigation	N/A	N/A	N/A	N/A	N/A	N/A

Description of impact		Extent	Duration	Intensity	Probability	Significance	Confidence
Activity: Dumping of waste material; stockpiling, uncontrolled movement of construction staff and vehicles within or in close proximity to wetland habitat or watercourses and introduction of sand with alien seed							
Physical destruction or deterioration of freshwater ecosystems	Without mitigation	Local	Long term	High	Highly Probable	High	M
	With mitigation	Local	Short term	Low	Probable	Negligible	M
Contamination of freshwater ecosystems	Without mitigation	Local	Medium term	High	Highly Probable	High	M
	With mitigation	Local	Short term	Low	Probable	Negligible	M
Increased disturbance of aquatic and semiaquatic fauna	Without mitigation	Local	Short term	High	Highly Probable	Medium	M
	With mitigation	Local	Short term	Low	Probable	Negligible	M
Sedimentation and loss of habitat quality	Without mitigation	Local	Medium term	High	Highly Probable	High	M
	With mitigation	Local	Short term	Medium	Probable	Negligible	M
Introduction of alien seed in building sand and increased alien invasion	Without mitigation	Local	Long term	Medium	Probable	Medium	M
	With mitigation	Local	Short term	Low	Improbable	Negligible	M

Description of impact		Extent	Duration	Intensity	Probability	Significance	Confidence
<i>Activity: Increased stormwater runoff into watercourses and seeps</i>							
Change in the natural hydrology of ephemeral streams with an increase in size and volume of peak flows, leading to erosion and habitat loss.	Without mitigation	Local	Long term	H	Improbable	Medium	M
	With mitigation	Local	Medium term	M	Improbable	Low	M
Increase in the duration and frequency of saturation of wetlands and loss of biotic integrity.	Without mitigation	Regional	Long term	M	Probable	High	M
	With mitigation	Local	Medium term	L	Improbable	Negligible	M
Water quality deterioration a shift in vegetation community structure resulting in a loss of ecosystem integrity	Without mitigation	Regional	Long term	L	Probable	High	M
	With mitigation	Local	Medium term	L	Improbable	Negligible	M
<i>Activity: Increased disturbance of wetlands and watercourses through trampling</i>							
Degradation of vegetation and habitat quality through trampling with an increased risk of erosion and invasion by weedy species.	Without mitigation	Local	Long term	M	Probable	Medium	M
	With mitigation	Local	Medium term	L	Improbable	Negligible	M
<i>Activity: Operation of sewage pump stations within the estate</i>							
Potential risk of pump failure and contamination of wetlands and watercourses with sewage effluent.	Without mitigation	Local	Medium term	M	Improbable	Low	M
	With mitigation	Local	Short term	M	Improbable	Negligible	M

Recommended mitigation measures:

- (1) The loss of habitat through dumping of waste, inappropriate placement of stockpiles and trampling by construction personnel and machinery can be minimised by ensuring that the open space areas that encompass seeps and watercourses within the area are adequately demarcated and fenced off from the development edge prior to the start of construction. Temporary fencing must be removed when construction in the vicinity of the open space areas has been completed.
- (2) Ensure that construction within the 50 m buffer area of watercourses and wetlands, does not take place during wet periods. In the Hartenbos region, historical rainfall records show that rainfall peaks in the spring (October/November) and again in autumn (April) with the lowest rainfall between December and February. While limiting construction within any watercourse or wetland buffer between December and January will reduce the risk of runoff into watercourses and wetlands from newly cleared areas and stockpiles, rainfall does occur beyond this period. Therefore, potential rainfall needs to be continuously monitored and additional measures implemented to either prevent or remediate any damage if necessary.
- (3) Ensure that all stockpiled materials are stored at least 50 m away from wetlands and watercourses.
- (4) Ensure that all stockpiles are covered when not in use and thus protected from wind to prevent spread of material.
- (5) Ensure that stockpile areas are adequately bunded such that there is no runoff from these areas into freshwater ecosystems, particularly where the terrain is steep.
- (6) Ensure that washing of vehicles and machinery take place well away from wetlands and watercourses (at least 50 m). All machinery must be regularly checked for leaks.
- (7) The provision of adequate ablution facilities for construction workers to avoid contamination of wetland habitats through human waste. No workers may go into the defined No-Go areas (the conservation area) unless for dedicated stormwater work;
- (8) Ensure that any disturbance created through construction related activities is identified by the ECO and effectively remediated through rehabilitation of the habitat.
- (9) A Construction Phase Environmental Management Programme (CEMP) must be compiled and its implementation enforced during the construction phase through regular inspection by an ECO with experience of freshwater ecosystems/or in consultation with a suitably qualified freshwater specialist.
- (10) Construction phase stormwater management to prevent contaminated runoff entering the wetlands and watercourses;
- (11) Final stormwater designs to be approved by a suitably qualified aquatic specialist prior to implementation.
- (12) Implemented stormwater design to be inspected by a suitably qualified aquatic specialist prior to commencement of top structures on each phase;

- (13) Freshwater specialist must be consulted with the External Audit for each phase to verify the effectiveness of the stormwater system as implemented.

14.4 SOCIAL

Tony Barbour from Tony Barbour Environmental Consulting & Research conducted the social impact assessment for the proposed development having consulted with various stakeholders and the market analyst for this development. He holds a Honours Degree in Economics as well as a MSc in Environmental Sciences.

In terms of SIA experience Tony Barbour has undertaken in the region of 300 SIAs and is the Author of the *Guidelines for Social Impact Assessments for EIA's* adopted by the Department of Environmental Affairs and Development Planning (DEA&DP) in the Western Cape in 2007.

Barbour (2022) considered the fact that the proposed Hartenbos Garden Estate Residential and Retirement Development is located within the Mossel Bay Urban Edge. The proposed development is therefore compatible with and supports the key principles and objectives contained in the relevant key land use planning and policy documents that pertain to the area, including the Mossel Bay Local Municipality Integrated Development Plan 2017-2022 and the Mossel Bay Conceptual Development Plan (CDP).

The findings of the SIA indicate that the construction and operational phase of the proposed development will create a number of positive social benefits. These include the creation of employment and business opportunities and broadening of the rates base for the local municipality. The proposed development will also provide a safe, secure, and quality living environment for residents and meet the demand of retirement facilities.

In addition, the potential negative impacts associated with the overall construction and operational phase are rated as **LOW Negative** with mitigation. Barbour is confident that the potential negative impacts can be effectively mitigated if the recommended mitigation measures are implemented.

In considering the Mossel Bay Spatial Concept Development Plan (CDP), Barbour notes that Aalwyndal is currently undergoing a precinct planning exercise as it has been identified as the next major development area for Mossel Bay. The CDP notes that this area is better located than Hartenbos North for this purpose, however environmental constraints within the greater Aalwyndal has greatly hampered development progress in this area. The CDP further notes that there appears to be a slow take-up and construction of houses on larger properties in more remote projects, particularly in Hartenbos North. This suggests there is a re-positioning in the market towards better located smaller dwellings on smaller plots. It is therefore likely that the market will respond positively to policy directives promoting densification on more integrated sites especially for security developments. This may have a potential bearing on the design of the proposed Hartenbos Garden Estate Development which is deemed to be a low-medium density development.

The no-development option would result in the lost opportunity for the local economy the MBM and residents who would benefit from the development.		
	Without Mitigation (Assumes that no development takes place)	With Enhancement (Assumes development takes place)

Extent	Local-Regional (3)	Local-Regional (3)
Duration	Long term (4)	Long term (4)
Magnitude	Moderate (6)	Moderate (6)
Probability	Definite (5)	Definite (5)
Significance	High (65)	High (65)
Status	Negative	Positive
Reversibility	Yes	
Irreplaceable loss of resources?	No	
Can impact be mitigated?	Yes	
Enhancement: See below		
Cumulative impacts: Negative, linked to lost opportunity for the local economy the MBM and residents who would benefit from the project.		
Residual impacts: See cumulative impacts		

Impact during the <u>construction</u> phase	Significance No Enhancement /Mitigation	Significance With Enhancement /Mitigation
Creation of business and employment opportunities	Medium (+)	Medium (+)
Presence of workers and risk to safety and security	Low (-)	Low (-)
Impact of construction related activities (dust, noise, safety etc.)	Medium (-)	Low (-)

Impact during the <u>operational</u> phase	Significance No Enhancement /Mitigation	With Enhancement /Mitigation
Employment and business opportunities	Medium (+)	Medium (+)
Broaden the rates base for the local municipality	Medium (-) ³	Medium (+)
Providing safe and quality living environment	Medium (+)	High (+)
Traffic impacts	Medium (-)	Low (-)
Impact on services	Medium (-)	Low (-)
Impact on rural sense of place	Medium (-)	Low (-)

Based on information from similar developments the capital expenditure associated with the proposed development would be approximately **R800-900 million** (2022 rand values). Most of the work associated with the construction phase is likely to be undertaken by local

³ Assumes that development does not proceed, and potential benefits are forgone.

contractors and builders. Most of the building materials associated with the construction phase will be sourced from locally based suppliers in the MBM and George Municipality. This will represent a positive injection of capital into the local economy. The proposed development would therefore represent a significant opportunity for the local construction and building sector.

The project should also be viewed within the context of the current economic climate in South Africa and the impact of COVID 19. The proposed development would therefore represent a significant opportunity for the local construction and building sector.

Based on similar mixed-use developments the construction phase (bulk services, residential, commercial and recreation component) will create in the region of **600 employment opportunities per annum over a minimum 4-year construction phase**. Of this total 60% would be low and semi-skilled workers and artisans and 40% would be skilled builders and sub-contractors. The total annual wage bill over four years is estimated to be in the region of **R 400 million**. A significant portion of the annual and total wage bill will be spent in the local economy. This would in turn benefit local business.

Most employment opportunities are likely to benefit local Historically Disadvantaged (HD) members of the community. This would represent a significant opportunity for the local building sector and members of the local community who are employed in the building sector.

Potential negative impacts have been identified as security and safety impacts associated with the presence of construction workers, as well as noise, dust, and safety impacts associated with construction related activities and the movement of heavy vehicles. According to Barbour these negative impacts can be mitigated to acceptable levels.

Recommended mitigation measures:

- The developer and or contractors cannot be held responsible for the off-site, after-hours behaviour of all construction employees. However, the contractors appointed by the developer and individual homeowners must ensure that all workers employed on the project are informed at the outset of the construction phase that any construction workers found guilty of theft will be dismissed and charged.
- No construction workers, with the exception of security personnel, must be allowed to stay on site overnight.
- Building contractors appointed by the developer and or private homeowners must ensure that workers are transported to and from the site on a daily basis.
- Construction related activities must comply with all relevant building regulations. In this regard activities on site must be restricted to between 07h00 and 18h00 during weekdays and 08h00 and 13h00 on Saturdays. No work should be permitted after 13h00 on Saturdays, Sundays and Public Holidays.
- The recommendations of the Traffic Impact Assessment (TIA) must be implemented.
- The movement of heavy construction related traffic along access roads must be planned to avoid the morning and afternoon traffic peaks.
- Drivers must be made aware of the potential risk posed to pedestrians and other road users along access roads.
- All drivers must ensure that the applicable speed limit along access routes is enforced.
- Any abnormal loads must be timed to avoid morning and afternoon peak traffic hours.

- Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers.
- All vehicles must be road-worthy, and drivers must be qualified, made aware of the potential road safety issues, and need for strict speed limits.
- Site clearing must be phased in order to minimise the exposed and reduce generation of dust, specifically during the dry, summer months.
- The developer must inform the local authorities, local community leaders, organizations and councillors of the project and the potential job opportunities for local builders and contractors.
- The developer must establish a database of local service companies in the area, specifically SMME's owned and run by HDI's. These companies must be notified of the tender process and invited to bid for project related work.
- The recommendations of the VIA must be implemented.

14.5 VISUAL

The Visual Impact Assessment was compiled by Bapela Cave Klapwijk (BCK) Landscape Architects & Environmental Consultants (January 2023).

In terms of the Guideline for involving Visual and Aesthetic Specialists in EIA Processes, Oberholzer, B., & CSIR, the scale of development and the area of open space (approximately 50% of the land area), the assessment is considered to be a Category 3 with a minimum to moderate visual impact expected. The proposed development is similar to existing surrounding development that is built on landforms flatter than 1 in 4 up against slopes. This places the study at a level 2 as described by the above Guideline.

The visual specialist has confirmed that the general development impact rating of **MEDIUM (-)** is acceptable on condition that the recommended mitigation measures not already implemented through Alternative 3 are implemented.

The proposed development is within the proclaimed Urban Edge and is adjacent to an existing residential which itself has developed over its own ridge line. The area being developed, except for the access road, is not steeper than 1:4.

The general visibility of the development is mostly limited to views of the housing units on the edge of the plateau mostly from the nearer existing suburbs lower on the landform and those on the higher ground to the southwest. These houses would typically face in a southern direction towards the Hartenbos River or the sea. Ultimately houses from this development will be visible on the horizon whereas in the present situation the natural landform of the hill forms the horizon. The visibility of the developed site from surrounding residential area will be mostly of the housing on the site's edge. These units which have already been set back by 20m to move them off the visual edge to reduce their visibility, will form the horizon in views toward the site. These unit will be partially screened by landscaping

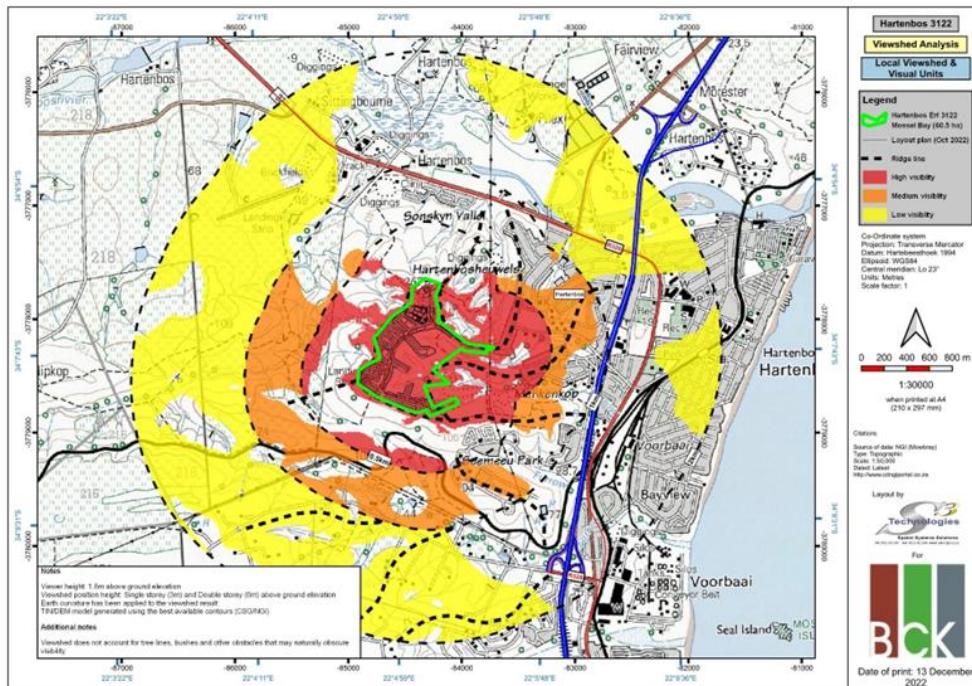


Figure 33: Areas indicated in red are places the development will be most visible from but these areas have south facing views therefore the visual impact is still not deemed high with Orange having medium visibility (Source BCK 2023).

Several alternative development lay-outs have been considered in the planning design stages. The final alternatives presented in this report has had the edge of the outer units moved 20m in from the boundary and has reduced the maximum height of the buildings to two storeys (Alternative 3).

The strong sense of place will be altered as houses will completely change i.e. high impact, of the existing ambience/character of the site. However, this is tempered by the existing adjacent residential development to the east that visually intrudes in the view. The proposed development will be most visible from the higher ground to the south-west and west at beyond the 1000m radial.

On this site there is no existing vegetation that will change the visibility of the site from views towards it from surrounding land. However, some of the coastal fynbos vegetation will be removed to make way for the roads and buildings and the site will become more visible from certain viewpoints. A 20m buffer zone has been provided on the boundary to set back the units and provide a vegetated strip between the plateau edge and the front units.

The visual scale of the structures or objects in the landscape will be reduced in visual prominence by the square of the distance between the observer and the site. This means that as the distance doubles, the visibility in scale of the object reduces by four times (Hull & Bishop, 1988). This has significance with respect to the visual intrusion of the proposed development for distances greater than 1000m away. This distance has been selected because the visible structures are much less prominent in the general view. The extent of visual significance does not extend beyond 2000m.

Although the visibility of the site does extend beyond the 2 000 m radial, it is within the 500 m radial in the north-eastern and eastern sector that the proposed residential

development will be most visible as well as just beyond the 1 000 m radial in the south and the south-western sector. This is due to the site being on the plateau hilltop of a local hill.

The site will be partially visible to the south-westbound traffic on the N2 as they approach Hartenbos from the east as much of it will be screened by the existing water reservoir that is located on the highest part of the plateau.

The overall assessment of the visual intrusion impact and visual impact of the preferred alternative development on the characteristics of the site and on views toward the site from surrounding areas is that the proposed residential development will have a **medium (-) visual impact** on the site and setting providing the proposed mitigation measures are incorporated.

<i>Impact</i>	<i>Nature</i>	<i>Extent</i>	<i>Duration</i>	<i>Intensity</i>	<i>Reversibility</i>	<i>Impact on Irreplaceable Resources</i>	<i>Consequence</i>	<i>Probability</i>	<i>Significance</i>	<i>Confidence</i>
Impact 1: The visual intrusion of the development on the setting in the context of the existing surrounding land use										
Impact Description: Visual intrusion of the proposed development due to its position on the top of a flat-topped hill that is a prominent in views toward the site.										
Without Mitigation	Negative	Medium	High	Medium	Medium	High	Medium	High	Medium	High
Mitigation Description: Keep housing out of areas of steep slopes, drainage lines and away 20m from the edge of the top of slopes. Building height should be limited to 2 storeys with pitched roof. On the edges Ensure that site lighting is directed downward and no flood lights. No sodium or mercury vapour light and light colour to be white incandescent or fluorescent. Light poles should be no taller than 3m										
With Mitigation	Negative	Medium	High	Low	Medium	Medium	Medium	High	Medium	High
Cumulative Impact: More housing will be developed in the area on rising landforms to the south as this area is under development. The addition of the proposed development lies within the Urban Edge and is zoned for this use therefore the cumulative effect on the existing setting will have is not in conflict with the existing planned development for Hartenbos. Significance: Medium										
Impact 2: The prominence of the buildings in the landscape setting										
Impact Description: The buildings on the site's edges can, as a result of their location on the top edge of the plateau's rim, be highly visually prominent.										
Without Mitigation	Negative	Medium	High	High	High	Medium	High	Medium	High	High
Mitigation Description: Building maximum height is to be 2 stories excluding a pitched roof on the edges. The building should not be closer then 20m to the start of the steep of the steep downslope. Set the building back from the edge of the down slope by 20m										
With Mitigation	Negative	Local	Medium	Low	Medium	Low	Low	Medium	Low	High
Cumulative Impact: No significant cumulative impact										
Impact 3: Change in Sense of Place										
Impact Description: The natural cover and form of the hill in views toward the proposed development on the hill will change the Sense of Place that exists for the surrounding houses and the setting of the suburb that has the natural landform as a background to views from close by and afar.										
Without Mitigation	Negative	Medium	High	Medium	Medium	Medium	Medium	Medium	Medium	High
Mitigation Description:										

Impact	Nature	Extent	Duration	Intensity	Reversibility	Impact on Irreplaceable Resources	Consequence	Probability	Significance	Confidence
Plant shrubs and small trees just down slope of the top to break the hard lines of the buildings on the top edge of the plateau. For internal softening of the building forms suitable trees and shrubs should be planted within the private open spaces as well as around the edge of the public open space and the 20m buffer zone.										
With Mitigation	Negative	Low	High	Low	Medium	Low	Low	Medium	Low	High
Cumulative Impact: No cumulative impact. Significance: N/a										
Impact 4: Landform change										
Impact Description: The earthworks for the roads, access to erven and building platforms can be extensive. Roads on steeper sloping landforms will require larger volumes of earth to be moved. This is a visual impact on the internal area and on the edges of the plateau in particular.										
Without Mitigation	Negative	Low	High	Medium	Medium	Medium	Medium	Medium	Medium	High
Mitigation Description: Keep development and roads off slopes that are steeper than 1:5. Implement rehabilitation plans.										
With Mitigation	Negative	Low	High	Low	High	Low	Low	Medium	Low	High
Cumulative Impact: The cumulative impact could be more cut and fill slopes that will erode and deposit silt into drains and drainage ways. This can have long term implications of pipe blockage, gully erosion etc. Maintenance of the consequences is costly.										
Impact 5: Night scene										
Impact Description: The alteration of the night view of the hill lit by house and streetlights accentuates the new development and eliminates the ambience of the dark landform rising above the surrounding lit residential suburbs.										
Without Mitigation	Negative	Medium	High	Medium	Medium	Medium	Medium	Medium	Medium	High
Mitigation Description: The light source must be white, directed downward, and not be seen directly. No up lighting is to be allowed nor flood lighting of structures or buildings. Limit light pole heights to 3m										
With Mitigation	Negative	Low	High	Low	Medium	Low	Low	Medium	Medium	High
Cumulative Impact: Medium										

Recommended mitigation measures:

Buildings on Slopes

- Where a building is supported on columns on the downslope of the erf, the area underneath will need to be stabilised with a stone pitching. Low shrubs must be planted on the edge of the area to afford some screening of the void.
- Erven on the top edge of the steep slopes e.g., the drainage line and the plateau, must accommodate single storey buildings only. The row behind can accommodate double storey units.
- The design of buildings on steeper slopes must be shown in sections in the Architectural Guidelines. This will ensure that only one storey and not two storey structures are constructed above the road level on the down-slope side of the road.
- All cut and fill soil surfaces must be adequately protected from erosion either by vegetation or a combination of block retaining walls and vegetation or rock cladding.

Colours for Roofs and Buildings to inform Architectural Guidelines

- Avoid bright reflective or contrasting colours for roofs and buildings.
- Tones and tints of selected complementary colours that fit the setting and vegetation should be considered.
- Subdued and complimentary natural shades and tints blend easily into a landscape setting.

Roads and Pathways

- Roads and pathways must be paved with a durable brick of brown/sand colour. The light brown colour is similar to the exposed earth in the area. The light colour will also not generate high surface temperatures as an asphalt or dark surface would.
- The cut and fill slopes must not be steeper than 1:2.5 vertical to horizontal as this allows vegetation to establish more easily. This will also reduce erosion of the soil.

Landscaping

- Tree planting must be done in accordance with a landscaping plan and trees to be planted must be as large as is possible to be obtained from a nurse supplier to assist in immediate visual screening.
- Landscaping must commence in conjunction with construction within areas that will not be affected by construction.
- All buffer zones on the edge of the boundary to be restored to endemic fynbos and Renosterveld with the exception of areas to be screened where more appropriate vegetation may be required.
- Vegetation within the boundary of the security fence servitude shall only be trimmed and not cleared or stripped.

Lighting

- External lights will increase the visual impact of the project at night therefore attention must be given to their selection for the specific function.
- All lighting therefore must be carefully considered with regard to the extent of illumination, the intensity and colour of lights and the luminaire and the height of the light pole especially along the borders of development with remaining natural areas.
- It is recommended that lighting is designed by a lighting engineer in collaboration with the landscape architect for the project. The aspects of the lighting plan must include the following:
 - Light fittings must have shields to eliminate sight of the light source.
 - Light poles must not exceed 3m in height.
 - Down lighting of areas is preferred to up lighting.
 - Any perimeter lights are to be directed downwards and inwards to the development (avoiding direction into remnant natural areas).
 - Emitted light colour must be a softer light than sodium (yellow) or mercury halide (blue-white). The light colour should also be chosen with knowledge of what colour will attract insects. It is important that a colour type and spread of light will not cause insects to be attracted to it and in so doing deplete the insect diversity of the region. For this purpose, an entomologist familiar with the effect of light frequencies on insects must be consulted when the lighting plan is compiled in conjunction with the final landscaping plan.
 - The use of flood lights to illuminate structures, large areas or features must not

- be allowed. Rather incorporate concealed lights to shine downwards. Darker areas on the building elevations will provide a less visually noticeable structure.
- No light fittings may spill light upwards or be directed upwards from a distance towards the area or building to be illuminated.
 - The lighting plan must strive to maximise the light energy use. This should include a hierarchy of light function. The function will determine the best light type to use. Some may be switched on only when needed by motion sensors.
 - Security lights must not flood the area with light continuously but must be activated by a motion sensor.

15 IMPACT SUMMARY STATEMENT

The potential impacts of the proposed development were identified and assessed by various specialists in compliance with the Environmental Regulations and approved Plan of Study for EIR. Further details on the significance and ratings of these impacts are provided in the main report and in the attached specialist reports.

Various technical studies were conducted to consider the availability of services associated with the proposed development and these specialists were tasked to consult with the relevant local and provincial authorities on the availability of services (capacity and supply) as well as proposed infrastructure requirements.

Below table is a summary of the main conclusions of each specialist discipline only:

BOTANICAL	Confirmation that the development footprint is contained within the area deemed to have low botanical sensitivity which will result in an overall low botanical impact. The preferred alternative is supported by the specialist.
BIODIVERSITY	Confirmation that the preferred development will result in overall low negative impacts with the preferred alternative allowing for improved ecological functioning through continuous invasive alien clearing, ecological burning, implementation of dedicated faunal gates linking to the neighbouring municipal conservation area, as well as protection of the butterfly reserve area. The preferred alternative is supported by the specialist.
FAUNA	Confirmation that the preferred development alternative will have an overall medium to low impact level and significance for specialist of special concern and faunal habitat. The preferred alternative is supported by the specialist.
FRESHWATER	With mitigation the specialist is of the opinion that the impacts associated with the proposed development is likely to pose a low negative risk to water sources and resources in the property and could in fact be considered under General Authorisation. The implementation of sewer infrastructure within the regulation area is the only reason for the WULA being undertaken. The preferred alternative is supported by the specialist subject to implementation of mitigation measures.
INTEGRATED HERITAGE (incl of	The integrated heritage assessment satisfies the requirements of Section 38 of the National Heritage Resources Act.

Archaeology and Palaeontology)	The specialist recommends that HWC endorses the proposed development.
VISUAL	The specialist deems the proposed development to have a medium negative impact on the receiving visual landscape. The preferred alternative is however acceptable with mitigation measures and can be considered for authorisation.
SOCIAL	The spectrum of socio-economic impacts associated with the proposed development range from medium positive to low negative. The specialist recommends that the development be approved with mitigation.
TRAFFIC	The development proposal is acceptable from a traffic perspective with allowances for both signalling and slip lane improvements as per the Louis Fourie Road Master Plan.
ELECTRICAL	The development can link to the existing 11kVA electrical line that traverses the site.
CIVIL	The development can be accommodated through the Municipal bulk services both in terms of network and capacity.

16 CONCLUSION

The scoping and assessment exercise was undertaken to present concept proposals to the public and potential Interested & Affected Parties and to identify and assess environmental issues and concerns raised as a result of the proposed development alternatives to date. This process allows Interested & Affected Parties (I&APs), authorities, the project team, as well as specialists to provide input and raise issues and concerns, based on the information presented throughout the ongoing environmental assessment process.

The proposed development has been analysed from Ecological, Freshwater, Social, Agricultural, Heritage, Visual perspectives, Botanical and Faunal perspective through the identification of constraints and anticipated risks, impacts and consequences/assessments considered.

Anticipated risk, impacts and consequences associated with the proposed development have been identified and considered and assessed by relevant specialists in the impact assessment phase of this application process. The proposed development comprises of various components which have been explored and described in this report.

Without exception, the specialists and technical professionals involved in the consideration and assessment of the proposed activity, have confirmed that the preferred alternative adheres to the original site constraints and that the anticipated negative impacts can be mitigated with reasonable and practical measures to ensure that development impacts and risks are acceptable to the broader society, Authorities and the Applicant.

Cape EAPrac is of the opinion that the information contained in this Draft Impact Assessment Report (DEIR) and the documentation attached hereto, is sufficient to allow the general public and key stakeholders to apply their minds to the potential negative and/or positive impacts associated with the development, in respect of the activities applied for.

The DEIR is available for stakeholder review and comment for a period of 30-days extending from **23 January 2023 – 22 February 2023**. All comments submitted during this period will be considered and reflected in the Final Environmental Impact Assessment report for consideration by the Competent Authority.

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