



BASIC ASSESSMENT REPORT

THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS.

NOVEMBER 2019

(For official use only)	
Pre-application Reference Number (if applicable):	16/3/3/6/7/1/D1/17/0195/19
EIA Application Reference Number:	
NEAS Reference Number:	
Exemption Reference Number (if applicable):	
Date BAR received by Department:	
Date BAR received by Directorate:	
Date BAR received by Case Officer:	

GENERAL PROJECT DESCRIPTION

(This must include an overview of the project including the Farm name/Portion/Erf number)

Sharples Environmental Services cc (SES) was appointed by *The Home Market NPC* as the independent Environmental Assessment Practitioner to conduct the Basic Assessment process for the proposed residential development (retirement village on Portion 103, 104 and a section Rotterdam Street, Wittedrift, Bitou Local Municipality.

A Notice of Intent to submit an application in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and the 2014 Environmental Impact Assessment Regulations; and/or the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), and/or the National Exemption Regulations.

The development will be located within the Wittedrift area, which is considered a settlement located to the north of Plettenberg Bay on the edge of the floodplain of the Bitou River. According to the draft Bitou Local Municipality Spatial Development Framework, November 2019. Surroundings include extensive areas of high biodiversity with intermittent agricultural activity, with a central retail node.

The preferred site is bordered by residential development, the Bosfontein River Wetland to the North West, and multiple road networks, including, Protea Street along the Eastern boundary, Hoof Road along the Southern boundary, and Kammassie Street along the Western boundary. Rotterdam Street

currently separates Erf 103 and Erf 104, from the Western to the Eastern boundary of the site, connecting to Protea Street to the East of the site.

The proposed development of Erf 103 and 104 with a portion of the Rotterdam Street reserve, requires the two erven and reserve portion to be consolidated into one Erf (this also includes the road reserve to be discarded). The consolidated area will then form the development site. The development of the retirement village will entail the following:

- 53 Retirement Units between 104 m² and 124 m² (Sectional title units)
- A community Centre with the following components:
 - Library
 - Kitchen
 - Utility/storeroom
 - Hair salon
 - Gym
 - Nurses Station
 - Office
 - Wheelchair friendly toilet facilities
 - Events Hall
 - Patio and braai
- An assisted living facility with the following components:
 - Six en-suite bedrooms for those requiring assistance
 - Assisted living quarters
 - Office
 - Kitchen
 - Laundry
 - Dining and lounge facility
 - Yard
- Open spaces:
 - The preservation of the seven mature oak trees that are found on the southern border
 - The northern section of the consolidated erf adjacent to the Bosfontein River will act as a buffer area.

Engineering Services:

With regard to bulk infrastructure, the Engineering report does specify that the developer may be liable for the payment of a Development Contribution (as calculated by Bitou Municipality) for bulk infrastructure upgrades as per Council Policy.

Water

Bulk Infrastructure:

The existing water reticulation system has sufficient capacity to accommodate the domestic flow of the proposed development in order to comply with the pressure criteria as set out in the master plan. However, upgrading of the existing reticulation network and bulk supply system is required in order to comply with the fire flow criteria and bulk supply criteria as set out in the master plan.

This bulk system to the Wittedrift, Aventura and Matjiesfontein reservoirs does not have sufficient capacity and will have to be reinforced to accommodate the proposed development in the existing water system.

The following network upgrades are proposed in order to comply with the fire flow criteria as set out in the master plan:

Network upgrade

- 430 m x 160 mm Ø replace existing 75 mm Ø pipe.

- 390 m x 110 mm Ø replace existing 75 mm Ø pipe.

Bulk Water Supply Upgrades

- 25 m x 160 mm Ø inter-connection between existing 150mm & 300mm Ø pipes (will be verified by the Bitou Municipality).

The existing 75mm Ø bulk pipeline between Kammassie Street and Protea Street crosses through the proposed development and will need to be relocated to within the proposed road reserve and form part of the internal reticulation. The cost of isolating valves and re-routing of the pipeline will be to the Developer's account. GLS Consulting have recommended that a new 75mm Ø pipe be installed in Kammassie Street to improve the existing network west of the proposed development.

Internal Infrastructure:

A metered water supply will be provided for each site. The existing 75 mm Ø pipe is currently supplied under gravity via the Wittedrift reservoir at a Top Water Level (TWL) of 70.0 m.a.s.l. While the existing water reticulation system has sufficient capacity to accommodate the domestic flow of the proposed development, upgrading of the existing reticulation network is required to comply with the fire flow criteria.

The existing reservoir volume available at the Wittedrift reservoir is 90 hours of the total AADD and is therefore sufficient to accommodate the proposed development. A preliminary water reticulation layout is included as Dwg 1692-R-100 in Appendix L.2 of this report

The proposed water reticulation network includes the following details:

- 50mm HDPE, ISO 4427, PE63, PN 10 /75mm Ø PVC-U SABS 966 class 9
- Approximate Length: +/- 625m

Wastewater

Bulk Infrastructure:

It has been determined that there is sufficient capacity in the existing sewer reticulation system to accommodate the proposed development. The existing Wittedrift pump station and rising main have sufficient capacity to accommodate the proposed development, however this should be verified by the Bitou Municipality.

The flow from Wittedrift pump station and multiple other pump stations are received at Aventura Pump Station. GLS Consulting have received information that the Aventura Pump Station has recently been upgraded to a pumping capacity of 78 L/s, but no upgrading have been performed to the existing Aventura PS rising main.

While the pumping capacity of 78 l/s at the Aventura PS will be sufficient to accommodate the proposed development at Wittedrift in the existing sewer system, the Engineers have recommended that the existing 200 mm Ø Aventura PS rising main is upgraded to a 355 mm Ø rising main (master plan item BPS34.2) to accommodate the ultimate planned Aventura PS capacity.

However, the capacity of the Aventura PS of 78 l/s and the diameter of the accompanying rising mains of 200 mm should be verified by the Bitou Municipality.

The following master plan item will be required to reinforce the existing system in order to accommodate the proposed development.

Network upgrade (Minimum requirement)

- 5 400 m x 355 mm Ø Upgrade existing Aventura pump station rising main.

Internal Infrastructure:

An existing 110mm Ø uPVC sewer extends down Protea Street which has been determined to be the most suitable sewer connection for the retirement village. While an existing 110mm Ø uPVC sewer extending from erf 104 into the sewer in Protea Street, which carries no flow and will be abandoned.

Various options were considered to provide sewerage infrastructure to the proposed development. Based on ground-based survey information, it was found that it is not possible to provide a full gravity sewer system to serve the entire development based on existing ground levels.

This left two options, namely a pumped system (which would have to be maintained by the residents) or shaping of the site to suit drainage of the properties. This second alternative was considered the most suitable option, primarily requiring shaping of a portion of erf 103 back towards the proposed roadway. The preliminary sewer design included in Volume 2 is based on a gravity sewer system to serve the development.

A layout indicating the proposed sewer network for the entire development is included as Dwg 1692-R-200, of Appendix L.2. However, this will only be finalised during the detail design stage of the project. Typical sewer and erf connection details are included as Dwg 1692-R-201 of Appendix L.2.

The proposed sewer network will entail the following details:

- 110mm Ø PVC u, Type 1, SANS 1601, 400 kPa pipes.
- Approximate Length: +/- 525m.

Stormwater

A Stormwater Management Plan, prepared by Nadeson Consulting Engineers (Pty) Ltd and supplied by Bitou Municipality has been used as the basis for the required stormwater infrastructure to accommodate flows within the catchment leading to the proposed development.

The current drainage is observed along Rotterdam Street where it crosses Rotterdam Street with a 600mm [450mm Ø] diameter pipe which outlets in to an open field and eventually down to Bosfontein River. It has been determined that the proposed pipe sizes have adequate capacity to accommodate the 2-year storm runoff with over 30% spare capacity (allowed for flash floods), and the drainage channels have adequate capacity to accommodate the 50-year storm runoff.

Preliminary designs based on using the proposed roadway cross sections, indicate that accommodating the internal stormwater will be possible.

Due to small area encompassing the proposed retirement village (2.1 hectares), there would be no need for on-site attenuation of stormwater. A 600mm diameter, 100D concrete stormwater pipe will convey stormwater generated on the site from the lowest point (near the community centre) to the main pipeline leading to the discharge point. An overland escape route will also be created to allow major storm flow to discharge into the valley below. The outlet will be suitably protected with gabions, reno mattresses or other suitable materials to prevent scour.

A layout plan indicating the stormwater catchment areas is included as Dwg 1692-R-401 of Appendix L.2. It is clear from inspection of these plans and the calculations tabulated in the report, that the effect of development produces a negligible increase in stormwater run-off which will be attenuated on site.

Floodline Analysis

A floodline analysis was carried out by Fraser Consulting Civil Engineers, which conclude that the 100 year recurrence interval storm it's at approximate level 8m MSL, which is at least 1,5m below the existing level of the lowest properties on erf 103 and 4,5m below the proposed levels of the lowest properties (after shaping). Their hydrological calculations show the 100 year RI peak flow rate to be 30m³/s.

Access

Entrance to and exit from the retirement village will be onto Protea Street, which carries minimal traffic, as it ends in a cul-de-sac serving 10 erven. During the worst peak hour, the development will generate approximately 16 trips compared to the 10 trips generated by the existing residential units along Protea Street. Bitou Municipality requested that Engineering Advice and Services apply to the District Roads Engineer (Oudtshoorn) for approval of the access onto Main Street, which is a District Road. All efforts to contact the DRE have been without success.

Roads

Table 2: A broad indication of the hierarchical functionality of the road network which is found in the proposed development.

Road Class	Maximum Dwelling Units Served	Preferred Maximum Length	Proposed Road Reserve Widths	Proposed Roadway Widths	Proposed Bell Mouth Radii at Intersections
Minor Collectors - Class 4	-	-	-	8.0 m	-
Local Distributors - Class 4	400 - 1500	n/a	16m	7.4 m	12m
Residential Access Collectors - Class 5a	200	500 m	12m	6.2 m	10m
Residential Access Loops - Class 5b	120	300 - 500 m	12m	6.0 m	8m
Access Cul-de-Sacs - Class 5c and 5d	< 60	150 m	8m	3.0 m	6m

The proposed road layout is indicated on the road layout plan (see Appendix L.2. Dwg 1692-R-300). Typical long sections for internal roads is included (see Appendix L.2. Dwg 1692-R-301 through 1692-R-304) and incorporate the road reserve and road widths proposed in the following section of this report.

The Engineers have noted that road widths and reserves for this development, do not comply with the guidelines but the Client has indicated that these should not be changed. In addition, they have noted that the Bell Mouth radii for this development do not comply with the guidelines due to the reduced road widths.

All road markings and signage are to be in accordance with the requirements of the South African Development Community Road Traffic Signs Manual (SADCRTSM). An allowance has been made for 1m wide sidewalks along roads within the proposed development, while it should be noted that no public embayments are provided within the development.

Electrical services

An electrical LB Distribution Line and Electrical MV cable run in the Rotterdam Road reserve. With the planned closing of a portion of the road for the development, a servitude needs to be created

within the erf with some re-routing. According to Telkom records, it has been confirmed that there are no existing servitudes, therefore a new underground route will be established by Openserve to make provision for the relocation of the overhead aerial route, that currently runs along the portion of Rotterdam Road that will be closed, to outside of the housing project's boundary.

Based on the proposal above, two alternative layouts were considered, this included the Preferred Alternative 1 (Rev 09, May 2019) which is the most current review, and Alternative 2 which is the original layout (Rev 07, May 2019).

Based on the latest Department of Environmental Affairs screening tool report, the following sensitivities were detected on site:

Table 1: DEA screening tool sensitivity themes applicable to this project.

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		
Palaeontology Theme		X		
Plant Species Theme			X	
Defence Theme				X
Terrestrial Biodiversity Theme	X			

A freshwater and heritage impact assessment was initiated to assess the site, and it's surroundings.

Following ground truthing:

Heritage Assessment:

It was established that the site and surroundings structures, held no particular aesthetic or historical significance, and must be considered ungradable in terms of HWC's criteria.

Freshwater Impact Assessment:

Erf 103 and 104 are presently located on top of a fluvial terrace and covered in terrestrial vegetation with negligible natural habitat remaining. The area has been subject to various impacts such as from agriculture, forestry and urban development. The top of the fluvial terrace is covered in Kikuyu grass (*Pennisetum Clandestinum*) and *Eragrostis curvula*. The site has existing footpaths, with scattered domestic waste, building rubble and garden waste. However, most of the disturbance is within the terrestrial area, while the aquatic habitat on site is less impacted and viable.

The development will impact upon the Bosfontein River wetland north of the development. The wetland habitat is degraded due to various impacts within the catchment. The wetland received a 'D' PES score, indicating a Poor system. However, this is an indication of the health of the whole reach of natural wetland. The fragment of wetland habitat remaining is in better health with dense vegetation cover and no signs of erosion. It is recommended that the wetland be maintained in its current state.

The Preferred Alternative 1 includes a 10m aquatic buffer. Although the infrastructure still slightly encroaches into the buffer, it is unlikely to cause high impacts to the aquatic habitat. Main impacts including erosion and sedimentation, flow modification, water pollution and loss/disturbance of aquatic vegetation, have been identified as medium significance, however once the

recommended mitigation is applied, this can be reduced to low significance. It is recommended that infrastructure be set back to be completely outside the buffer.

In addition, the proposed development activities will trigger a water use licence in terms of Section 21 (c) and (i) of the National Water Act (Act 36 of 1998). It is recommended that a water use application for this proposed development be submitted to the Breede Gouritz Catchment Management Agency.

IMPORTANT INFORMATION TO BE READ PRIOR TO COMPLETING THIS BASIC ASSESSMENT REPORT

1. **The purpose** of this template is to provide a format for the Basic Assessment report as set out in Appendix 1 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), Environmental Impact Assessment ("EIA") Regulations, 2014 (as amended) in order to ultimately obtain Environmental Authorisation.
2. The Environmental Impact Assessment ("EIA") Regulations is defined in terms of Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA") hereinafter referred to as the "NEMA EIA Regulations".
3. The required information must be typed within the spaces provided in this Basic Assessment Report ("BAR"). The sizes of the spaces provided are not necessarily indicative of the amount of information to be provided.
4. All applicable sections of this BAR must be completed.
5. Unless protected by law, all information contained in, and attached to this BAR, will become public information on receipt by the Competent Authority. If information is not submitted with this BAR due to such information being protected by law, the applicant and/or Environmental Assessment Practitioner ("EAP") must declare such non-disclosure and provide the reasons for believing that the information is protected.
6. This BAR is current as of **November 2019**. It is the responsibility of the Applicant/ EAP to ascertain whether subsequent versions of the BAR have been released by the Department. Visit this Department's website at <http://www.westerncape.gov.za/eadp> to check for the latest version of this BAR.
7. This BAR is the standard format, which must be used in all instances when preparing a BAR for Basic Assessment applications for an environmental authorisation in terms of the NEMA EIA Regulations when the Western Cape Government Department of Environmental Affairs and Development Planning ("DEA&DP") is the Competent Authority.
8. Unless otherwise indicated by the Department, one hard copy and one electronic copy of this BAR must be submitted to the Department at the postal address given below or by delivery thereof to the Registry Office of the Department. Reasonable access to copies of this Report must be provided to the relevant Organs of State for consultation purposes, which may, if so indicated by the Department, include providing a printed copy to a specific Organ of State.
9. This BAR must be duly dated and originally signed by the Applicant, EAP (if applicable) and Specialist(s) and must be submitted to the Department at the details provided below.
10. The Department's latest Circulars pertaining to the "One Environmental Management System" and the EIA Regulations, any subsequent Circulars, and guidelines must be taken into account when completing this BAR.
11. Should a water use licence application be required in terms of the National Water Act, 1998 (Act No. 36 of 1998) ("NWA"), the "One Environmental System" is applicable, specifically in terms of the synchronisation of the consideration of the application in terms of the NEMA and the NWA. Refer to this Department's Circular EADP 0028/2014: One Environmental Management System.
12. Where Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) ("NHRA") is triggered, a copy of Heritage Western Cape's final comment must be attached to the BAR.
13. The Screening Tool developed by the National Department of Environmental Affairs must be used to generate a screening report. Please use the Screening Tool link <https://screening.environment.gov.za/screeningtool> to generate the Screening Tool Report. The screening tool report must be attached to this BAR.

14. Where this Department is also identified as the Licencing Authority to decide on applications under the National Environmental Management: Air Quality Act (Act No. 29 of 2004) ('NEM:AQA"), the submission of the Report must also be made as follows, for-
Waste Management Licence Applications, this report must also (i.e., another hard copy and electronic copy) be submitted for the attention of the Department's Waste Management Directorate (Tel: 021-483-2728/2705 and Fax: 021-483-4425) at the same postal address as the Cape Town Office.

Atmospheric Emissions Licence Applications, this report must also be (i.e., another hard copy and electronic copy) submitted for the attention of the Licensing Authority or this Department's Air Quality Management Directorate (Tel: 021 483 2888 and Fax: 021 483 4368) at the same postal address as the Cape Town Office.

DEPARTMENTAL DETAILS

<p align="center">CAPE TOWN OFFICE: REGION 1 and REGION 2</p> <p align="center">(Region 1: City of Cape Town, West Coast District) (Region 2: Cape Winelands District & Overberg District)</p>	<p align="center">GEORGE OFFICE: REGION 3</p> <p align="center">(Central Karoo District & Garden Route District)</p>
<p>BAR must be sent to the following details:</p> <p>Western Cape Government Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 1 or 2) Private Bag X 9086 Cape Town, 8000</p> <p>Registry Office 1st Floor Utilitas Building 1 Dorp Street, Cape Town</p> <p>Queries should be directed to the Directorate: Development Management (Region 1 and 2) at: Tel: (021) 483 5829 Fax (021) 483 4372</p>	<p>BAR must be sent to the following details:</p> <p>Western Cape Government Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 3) Private Bag X 6509 George, 6530</p> <p>Registry Office 4th Floor, York Park Building 93 York Street George</p> <p>Queries should be directed to the Directorate: Development Management (Region 3) at: Tel: (044) 805-8600 Fax (044) 805 8650</p>

MAPS

<p>Provide a location map (see below) as Appendix A1 to this BAR that shows the location of the proposed development and associated structures and infrastructure on the property.</p>	
<p>Locality Map:</p>	<p>The scale of the locality map must be at least 1:50 000. For linear activities or development proposals of more than 25 kilometres, a smaller scale e.g., 1:250 000 can be used. The scale must be indicated on the map. The map must indicate the following:</p> <ul style="list-style-type: none"> • an accurate indication of the project site position as well as the positions of the alternative sites, if any; • road names or numbers of all the major roads as well as the roads that provide access to the site(s) • a north arrow; • a legend; and • a linear scale. <p>For ocean based or aquatic activity, the coordinates must be provided within which the activity is to be undertaken and a map at an appropriate scale clearly indicating the area within which the activity is to be undertaken.</p> <p>Where comment from the Western Cape Government: Transport and Public Works is required, a map illustrating the properties (owned by the Western Cape Government: Transport and Public Works) that will be affected by the proposed development must be included in the Report.</p>
<p>Provide a detailed site development plan / site map (see below) as Appendix B1 to this BAR; and if applicable, all alternative properties and locations.</p>	
<p>Site Plan:</p>	<p>Detailed site development plan(s) must be prepared for each alternative site or alternative activity. The site plans must contain or conform to the following:</p>

	<ul style="list-style-type: none"> The detailed site plan must preferably be at a scale of 1:500 or at an appropriate scale. The scale must be clearly indicated on the plan, preferably together with a linear scale. The property boundaries and numbers of all the properties within 50m of the site must be indicated on the site plan. On land where the property has not been defined, the co-ordinates of the area in which the proposed activity or development is proposed must be provided. The current land use (not zoning) as well as the land use zoning of each of the adjoining properties must be clearly indicated on the site plan. The position of each component of the proposed activity or development as well as any other structures on the site must be indicated on the site plan. Services, including electricity supply cables (indicate aboveground or underground), water supply pipelines, boreholes, sewage pipelines, storm water infrastructure and access roads that will form part of the proposed development must be clearly indicated on the site plan. Servitudes and an indication of the purpose of each servitude must be indicated on the site plan. Sensitive environmental elements within 100m of the site must be included on the site plan, including (but not limited to): <ul style="list-style-type: none"> Watercourses / Rivers / Wetlands Flood lines (i.e., 1:100 year, 1:50 year and 1:10 year where applicable); Coastal Risk Zones as delineated for the Western Cape by the Department of Environmental Affairs and Development Planning ("DEA&DP"); Ridges; Cultural and historical features/landscapes; Areas with indigenous vegetation (even if degraded or infested with alien species). Whenever the slope of the site exceeds 1:10, a contour map of the site must be submitted. North arrow <p>A map/site plan must also be provided at an appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred and alternative sites indicating any areas that should be avoided, including buffer areas.</p>
Site photographs	Colour photographs of the site that shows the overall condition of the site and its surroundings (taken on the site and taken from outside the site) with a description of each photograph. The vantage points from which the photographs were taken must be indicated on the site plan, or locality plan as applicable. If available, please also provide a recent aerial photograph. Photographs must be attached to this BAR as Appendix C . The aerial photograph(s) should be supplemented with additional photographs of relevant features on the site. Date of photographs must be included. Please note that the above requirements must be duplicated for all alternative sites.
Biodiversity Overlay Map:	A map of the relevant biodiversity information and conditions must be provided as an overlay map on the property/site plan. The Map must be attached to this BAR as Appendix D .
Linear activities or development and multiple properties	GPS co-ordinates must be provided in degrees, minutes and seconds using the Hartebeeshoek 94 WGS84 co-ordinate system. Where numerous properties/sites are involved (linear activities) you must attach a list of the Farm Name(s)/Portion(s)/Erf number(s) to this BAR as an Appendix. For linear activities that are longer than 500m, please provide a map with the co-ordinates taken every 100m along the route to this BAR as Appendix A3 .

ACRONYMS

DAFF:	Department of Forestry and Fisheries
DEA:	Department of Environmental Affairs
DEA& DP:	Department of Environmental Affairs and Development Planning
DHS:	Department of Human Settlement
DoA:	Department of Agriculture
DoH:	Department of Health
DWS:	Department of Water and Sanitation
EMPr:	Environmental Management Programme
HWC:	Heritage Western Cape
NFEPA:	National Freshwater Ecosystem Protection Assessment
NSBA:	National Spatial Biodiversity Assessment
TOR:	Terms of Reference
WCBSP:	Western Cape Biodiversity Spatial Plan
WCG:	Western Cape Government

ATTACHMENTS

Note: The Appendices must be attached to the BAR as per the list below. Please use a ✓ (tick) or a x (cross) to indicate whether the Appendix is attached to the BAR.

The following checklist of attachments must be completed.

APPENDIX			✓ (Tick) or x (cross)
Appendix A:	Maps		
	Appendix A1:	Locality Map	✓
	Appendix A2:	Coastal Risk Zones as delineated in terms of ICMA for the Western Cape by the Department of Environmental Affairs and Development Planning	N/A
	Appendix A3:	Map with the GPS co-ordinates for linear activities	
	Appendix A3.1	Proposed Water Reticulation_(DWG 1692-R-100)	✓
	Appendix A3.1.1	Water Reticulation Coordinates	✓
	Appendix A3.2	Proposed Sewer Network_(DWG 1692-R-200)	✓
	Appendix A3.2.1	Proposed Sewer Network_Coordinates	✓
Appendix B:	Appendix B1:	Site development plan(s)	
	Appendix B1.1:	Preferred Alternative 1 Layout	✓
	Appendix B1.2:	Alternative 2 Layout	✓
	Appendix B2	A map of appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffer areas;	✓
Appendix C:	Photographs		
	Appendix C.1	Site Photos	✓
Appendix D:	Biodiversity overlay map		
	Appendix D.1	Biodiversity Map	✓
Appendix E:	Permit(s) / license(s) / exemption notice, agreements, comments from State Department/Organs of state and service letters from the municipality.		
	Appendix E1:	Final comment/ROD from HWC	N/A
	Appendix E2:	Copy of comment from Cape Nature	N/A
	Appendix E3:	Final Comment from the DWS	N/A
	Appendix E4:	Comment from the DEA: Oceans and Coast	N/A

	Appendix E5:	Comment from the DAFF	N/A
	Appendix E6:	Comment from WCG: Transport and Public Works	N/A
	Appendix E7:	Comment from WCG: DoA	N/A
	Appendix E8:	Comment from WCG: DHS	N/A
	Appendix E9:	Comment from WCG: DoH	N/A
	Appendix E10:	Comment from DEA&DP: Pollution Management	N/A
	Appendix E11:	Comment from DEA&DP: Waste Management	N/A
	Appendix E12:	Comment from DEA&DP: Biodiversity	N/A
	Appendix E13:	Comment from DEA&DP: Air Quality	N/A
	Appendix E14:	Comment from DEA&DP: Coastal Management	N/A
	Appendix E15:	Comment from the local authority	N/A
	Appendix E16:	Confirmation of all services (water, electricity, sewage, solid waste management)	X
	Appendix E17:	Comment from the District Municipality	N/A
	Appendix E18:	Copy of an exemption notice	N/A
	Appendix E19	Pre-approval for the reclamation of land	N/A
	Appendix E20:	Proof of agreement/TOR of the specialist studies conducted.	✓
	Appendix E21:	Proof of land use rights	
	Appendix E21.1	Motivation for Application	✓
	Appendix E22:	Proof of public participation agreement for linear activities	X
	Appendix E23:	Response from DEADP on submission of NOI	✓

	Appendix E24:	Response from HWC on submission of NID	✓
Appendix F:	Public participation information: including a copy of the register of I&APs, the comments and responses Report, proof of notices, advertisements and any other public participation information as is required.		✓
Appendix G:	Specialist Report(s)		✓
Appendix H:	EMPr		✓
Appendix I:	Appendix I.1.	Screening Tool Report_19/10/2019	✓
	Appendix I.2.	Screening Tool Report_23/06/2020	✓
Appendix J:	The impact and risk assessment for each alternative		✓
Appendix K:	Need and desirability for the proposed activity or development in terms of this Department's guideline on Need and Desirability (March 2013)/DEA Integrated Environmental Management Guideline		X
Appendix.....	Any other attachments must be included as subsequent appendices		
Appendix L	Appendix L.1.	Draft Engineering Report	✓
	Appendix L.2.	Preliminary Engineering Drawings	✓

SECTION A: ADMINISTRATIVE DETAILS

	CAPE TOWN OFFICE:		GEORGE OFFICE:
	REGION 1 (City of Cape Town, West Coast District)	REGION 2 (Cape Winelands District & Overberg District)	REGION 3 (Central Karoo District & Garden Route District)
Highlight the Departmental Region in which the intended application will fall			
Duplicate this section where there is more than one Proponent			
Name of Applicant/Proponent:			
Name of contact person for Applicant/Proponent (if other):	Lance Anthony Del Monte		
Company/ Trading name/State Department/Organ of State:	The Home Market NPC		
Company Registration Number:	REG 2002/013333-8		
Postal address:	7 Upper Dickens Street, Central		
	Port Elizabeth	Postal code: 6001	
Telephone:	(041) 373 1843		
E-mail:	lance@mplan.co.za	Fax:	
Company of EAP:	Sharples Environmental Services CC		
EAP name:	Ameesha Sanker		
Postal address:	PO Box 9087		
	George	Postal code: 6530	
Telephone:	(021) 554 5195		Cell: (072) 126 0161
E-mail:	ameesha@sesc.net		Fax: ()

Qualifications:	Bsc Honours in Environmental Management	
EAPASA registration no:	Not yet obtained by Ameesha Sanker.	
	Reviewed by Betsy Ditcham (EAPASA Registration No.: 1480)	
Duplicate this section where there is more than one landowner	The Home Market NPC	
Name of landowner:	Lance Del Monte	
Name of contact person for landowner (if other):	7 Upper Dickens Street, Central	
Postal address:	Port Elizabeth	Postal code: 6001
Telephone:	(041) 373 1843	Cell: 082 572 3257
E-mail:	lance@mplan.co.za	Fax: (041) 373 1838
Name of Person in control of the land:	Lance Del Monte	
Name of contact person for person in control of the land:	Lance Del Monte	
Postal address:	7 Upper Dickens Street, Central	
	Port Elizabeth	Postal code: 6001
Telephone:	(041) 373 1843	Cell: 082 572 3257
E-mail:	lance@mplan.co.za	Fax: (041) 373 1838

Duplicate this section where there is more than one Municipal Jurisdiction	Bitou Municipality	
Municipality in whose area of jurisdiction the proposed activity will fall:	Mr. Thabo Ndlovu	
Contact person:	Private Bag X1002	
Postal address:	Plettenberg Bay	Postal code: 6600
Telephone:	(044) 501 3172	Cell:
E-mail:	dbyl@plett.gov.za	Fax: (044) 533 3485

SECTION B: CONFIRMATION OF SPECIFIC PROJECT DETAILS AS INCLUDED IN THE APPLICATION FORM

1.	Is the proposed development (please tick):	New	✓	Expansion	
2.	Is the proposed site(s) a brownfield or greenfield site? Please explain.				
This site is considered a greenfield site, as there are no existing structures within the site, the land is currently undeveloped, with roadways along the borders.					
3. For Linear activities or developments					
3.1.	Provide the Farm(s)/Farm Portion(s)/Erf number(s) for all routes:				
<ul style="list-style-type: none"> • Erf 103 • Protea Street (RE/245) 					
3.2.	Development footprint of the proposed development for all alternatives.				m ²
<ul style="list-style-type: none"> • Footprint for the proposed water reticulation network: 406.25 m² - 421.875 m² - Dependent on final pipe diameters: <ul style="list-style-type: none"> - 50φ = 650mm trench width - 75φ = 675mm trench width - Approximate Length: +/- 625m • Footprint for the proposed sewer gravity network: 372.75 m² - Dependent on final pipe diameters: 					

- 110 ϕ = 710mm trench width
- Approximate Length: +/- 525m

There is a possibility that the water pipeline length might increase (by +/-100m) if the Bitou Municipality insists that a new line be laid down Kammassie Street to improve the water pressure to the erven west of the development.

3.3. Provide a description of the proposed development (e.g. for roads the length, width and width of the road reserve in the case of pipelines indicate the length and diameter) for all alternatives.

Proposed Sewer Gravity Pipeline (See Appendix L1: Engineering Report, DWG No. 1692-R-200):

- 110mm ϕ PVC u, Type 1, SANS 1601, 400 kPa pipes.
- Approximate Length: +/- 525m.

Proposed Water Reticulation (See Appendix L1: Engineering Report, DWG No. 1692-R-100 -101)

- 50mm HDPE, ISO 4427, PE63, PN 10 /75mm ϕ PVC-U SABS 966 class 9
- Approximate Length: +/- 625m

3.4. Indicate how access to the proposed routes will be obtained for all alternatives.

Entrance to and exit from the retirement village will be onto Protea Street.

3.5.	SG Digit codes of the Farms/Farm Portions/Erfs numbers for all alternatives: (Erf 103)	C	0	3	9	0	0	1	1	0	0	0	0	0	1	0	3	0	0	0	0	0
	SG Digit codes of the Farms/Farm Portions/Erfs numbers for all alternatives: (Protea Street)	C	0	3	9	0	0	1	1	0	0	0	0	0	2	4	5	0	0	0	0	0

3.6. **Starting point co-ordinates for all alternatives – Proposed Water Reticulation**

Latitude (S)	34°	00'	33.66"
Longitude (E)	23°	19'	57.21"

Middle point co-ordinates for all alternatives

Latitude (S)	34°	00'	33.40"
Longitude (E)	23°	20'	01.23"

End point co-ordinates for all alternatives

Latitude (S)	34°	00'	30.09"
Longitude (E)	23°	20'	03.02"

Starting point co-ordinates for all alternatives – Proposed Sewer Reticulation

Latitude (S)	34°	00'	34.14"
Longitude (E)	23°	19'	59.46"

Middle point co-ordinates for all alternatives

Latitude (S)	34°	00'	31.49"
Longitude (E)	23°	20'	0.05"

End point co-ordinates for all alternatives

Latitude (S)	34°	00'	29.83"
Longitude (E)	23°	20'	2.76"

Note: For Linear activities or developments longer than 500m, a map indicating the co-ordinates for every 100m along the route must be attached to this BAR as Appendix A3.

4.	Other developments	
4.1.	Property size(s) of all proposed site(s):	33401 m ²
4.2.	Developed footprint of the existing facility and associated infrastructure (if applicable):	N/A
4.3.	Development footprint of the proposed development and associated infrastructure size(s) for all alternatives:	33401 m ²
4.4.	Provide a detailed description of the proposed development and its associated infrastructure (This must include details of e.g. buildings, structures, infrastructure, storage facilities, sewage/effluent treatment and holding facilities).	

The proposed development of Erf 103 and 104 with a portion of the Rotterdam Street reserve, requires the two erven and reserve portion to be consolidated into one Erf (this also includes the road reserve to be discarded). The consolidated area will then form the development site. The development of the retirement village will entail the following:

- 53 Retirement Units between 104 m² and 124 m² (Sectional title units)
- A community Centre with the following components:
 - Library
 - Kitchen
 - Utility/storeroom
 - Hair salon
 - Gym
 - Nurses Station
 - Office
 - Wheelchair friendly toilet facilities
 - Events Hall
 - Patio and braai
- An assisted living facility with the following components:
 - Six en-suite bedrooms for those requiring assistance
 - Assisted living quarters
 - Office
 - Kitchen
 - Laundry
 - Dining and lounge facility
 - Yard
- Open spaces:
 - The preservation of the seven mature oak trees that are found on the southern border
 - The northern section of the consolidated erf adjacent to the Bosfontein River, this is a buffer area.

Engineering Services:

With regard to bulk infrastructure, the Engineering report does specify that the developer may be liable for the payment of a Development Contribution (as calculated by Bitou Municipality) for bulk infrastructure upgrades as per Council Policy.

Water

Bulk Infrastructure:

The existing water reticulation system has sufficient capacity to accommodate the domestic flow of the proposed development in order to comply with the pressure criteria as set out in the master plan. However, upgrading of the existing reticulation network and bulk supply system is required in order to comply with the fire flow criteria and bulk supply criteria as set out in the master plan.

This bulk system to the Wittedrift, Aventura and Matjiesfontein reservoirs does not have sufficient capacity and will have to be reinforced to accommodate the proposed development in the existing water system.

The following network upgrades are proposed in order to comply with the fire flow criteria as set out in the master plan:

Network upgrade

- 430 m x 160 mm Ø replace existing 75 mm Ø pipe.
- 390 m x 110 mm Ø replace existing 75 mm Ø pipe.

Bulk Water Supply Upgrades

- 25 m x 160 mm Ø inter-connection between existing 150mm & 300mm Ø pipes (will be verified by the Bitou Municipality).

The existing 75mm Ø bulk pipeline between Kammassie Street and Protea Street crosses through the proposed development and will need to be relocated to within the proposed road reserve and form part of the internal reticulation. The cost of isolating valves and re-routing of the pipeline will be to the Developer's account. GLS Consulting have recommended that a new 75mm Ø pipe be installed in Kammassie Street to improve the existing network west of the proposed development.

Internal Infrastructure:

A metered water supply will be provided for each site. The existing 75 mm Ø pipe is currently supplied under gravity via the Wittedrift reservoir at a Top Water Level (TWL) of 70.0 m.a.s.l. While the existing water reticulation system has sufficient capacity to accommodate the domestic flow of the proposed development, upgrading of the existing reticulation network is required to comply with the fire flow criteria.

The existing reservoir volume available at the Wittedrift reservoir is 90 hours of the total AADD and is therefore sufficient to accommodate the proposed development. A preliminary water reticulation layout is included as Dwg 1692-R-100 in Appendix L.2 of this report

The proposed water reticulation network includes the following details:

- 50mm HDPE, ISO 4427, PE63, PN 10 /75mm Ø PVC-U SABS 966 class 9
- Approximate Length: +/- 625m

Wastewater

Bulk Infrastructure:

It has been determined that there is sufficient capacity in the existing sewer reticulation system to accommodate the proposed development. The existing Wittedrift pump station and rising main have sufficient capacity to accommodate the proposed development, however this should be verified by the Bitou Municipality.

The flow from Wittedrift pump station and multiple other pump stations are received at Aventura Pump Station. GLS Consulting have received information that the Aventura Pump Station has recently been upgraded to a pumping capacity of 78 L/s, but no upgrading have been performed to the existing Aventura PS rising main.

While the pumping capacity of 78 l/s at the Aventura PS will be sufficient to accommodate the proposed development at Wittedrift in the existing sewer system, the Engineers have recommended that the existing 200 mm Ø Aventura PS rising main is upgraded to a 355 mm Ø rising main (master plan item BPS34.2) to accommodate the ultimate planned Aventura PS capacity.

However, the capacity of the Aventura PS of 78 l/s and the diameter of the accompanying rising mains of 200 mm should be verified by the Bitou Municipality.

The following master plan item will be required to reinforce the existing system in order to accommodate the proposed development.

Network upgrade (Minimum requirement)

- 5 400 m x 355 mm Ø Upgrade existing Aventura pump station rising main.

Internal Infrastructure:

An existing 110mm Ø uPVC sewer extends down Protea Street which has been determined to be the most suitable sewer connection for the retirement village. While an existing 110mm Ø uPVC sewer extending from erf 104 into the sewer in Protea Street, which carries no flow and will be abandoned.

Various options were considered to provide sewerage infrastructure to the proposed development. Based on ground-based survey information, it was found that it is was not possible to provide a full gravity sewer system to serve the entire development based on existing ground levels.

This left two options, namely a pumped system (which would have to be maintained by the residents) or shaping of the site to suit drainage of the properties. This second alternative was considered the most suitable option, primarily requiring shaping of a portion of erf 103 back towards the proposed roadway. As advised previously, the raising of the lower erven on erf 103 will enable drainage to connect to the proposed sewer between erven 103 and 104. G7 gravel would be suitable (compacted in 150-200mm layers) battered at a 1:2 slope to ground level (approximately 1:100 year floodline level at ground intersecting points). The preliminary sewer design included in Volume 2 is based on a gravity sewer system to serve the development.

A layout indicating the proposed sewer network for the entire development is included as Dwg 1692-R-200, of Appendix L.2. However, this will only be finalised during the detail design stage of the project. Typical sewer and erf connection details are included as Dwg 1692-R-201 of Appendix L.2.

The proposed sewer network will entail the following details:

110mm Ø PVC u, Type 1, SANS 1601, 400 kPa pipes.

Approximate Length: +/- 525m.

Stormwater

A Stormwater Management Plan, prepared by Nadeson Consulting Engineers (Pty) Ltd and supplied by Bitou Municipality has been used as the basis for the required stormwater infrastructure to accommodate flows within the catchment leading to the proposed development.

The current drainage is observed along Rotterdam Street where it crosses Rotterdam Street with a 600mm [450mm Ø] diameter pipe which outlets into an open field and eventually down to Bosfontein River. It has been determined that the proposed pipe sizes have adequate capacity to accommodate the 2-year storm runoff with over 30% spare capacity (allowed for flash floods), and the drainage channels have adequate capacity to accommodate the 50-year storm runoff.

Preliminary designs based on using the proposed roadway cross sections, indicate that accommodating the internal stormwater will be possible.

Due to small area encompassing the proposed retirement village (2.1 hectares), there would be no need for on-site attenuation of stormwater. A 600mm diameter, 100D concrete stormwater pipe will convey stormwater generated on the site from the lowest point (near the community centre)

to the main pipeline leading to the discharge point. An overland escape route will also be created to allow major storm flow to discharge into the valley below. The outlet will be suitably protected with gabions, reno mattresses or other suitable materials to prevent scour.

A layout plan indicating the stormwater catchment areas is included as DWA 1692-R-401 of Appendix L.2. It is clear from inspection of these plans and the calculations tabulated in the report, that the effect of development produces a negligible increase in stormwater run-off which will be attenuated on site.

Floodline Analysis

A floodline analysis was carried out by Fraser Consulting Civil Engineers, which conclude that the 100 year recurrence interval storm its at approximate level 8m MSL, which is at least 1,5m below the existing level of the lowest properties on erf 103 and 4,5m below the proposed levels of the lowest properties (after shaping). Their hydrological calculations show the 100 year RI peak flow rate to be 30m³/s.

Electrical Services

An electrical LB Distribution Line and Electrical MV cable run in the Rotterdam Road reserve. With the planned closing of a portion of the road for the development, a servitude needs to be created within the erf with some re-routing. According to Telkom records, it has been confirmed that there are no existing servitudes, therefore a new underground route will be established by Openserve to make provision for the relocation of the overhead aerial route, that currently runs along the portion of Rotterdam Road that will be closed, to outside of the housing project's boundary.

Access

Entrance to and exit from the retirement village will be onto Protea Street, which carries minimal traffic, as it ends in a cul-de-sac serving 10 erven. During the worst peak hour, the development will generate approximately 16 trips compared to the 10 trips generated by the existing residential units along Protea Street. Bitou Municipality requested that Engineering Advice and Services apply to the District Roads Engineer (Oudtshoorn) for approval of the access onto Main Street, which is a District Road. All efforts to contact the DRE have been without success.

Roads

Table 2: A broad indication of the hierarchical functionality of the road network which is found in the proposed development.

Road Class	Maximum Dwelling Units Served	Preferred Maximum Length	Proposed Road Reserve Widths	Proposed Roadway Widths	Proposed Bell Mouth Radii at Intersections
Minor Collectors - Class 4	-	-	-	8.0 m	-
Local Distributors - Class 4	400 - 1500	n/a	16m	7.4 m	12m
Residential Access Collectors - Class 5a	200	500 m	12m	6.2 m	10m
Residential Access Loops - Class 5b	120	300 - 500 m	12m	6.0 m	8m

Access Cul-de-Sacs - Class 5c and 5d	< 60	150 m	8m	3.0 m	6m
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The proposed road layout is indicated on the road layout plan (see Appendix L.2. Dwg 1692-R-300). Typical long sections for internal roads is included (see Appendix L.2. Dwgs 1692-R-301 through 1692-R-304) and incorporate the road reserve and road widths proposed in the following section of this report.

The Engineers have noted that road widths and reserves for this development, do not comply with the guidelines but the Client has indicated that these should not be changed. In addition, they have noted that the Bell Mouth radii for this development do not comply with the guidelines due to the reduced road widths.

All road markings and signage are to be in accordance with the requirements of the South African Development Community Road Traffic Signs Manual (SADCRTSM). An allowance has been made for 1m wide sidewalks along roads within the proposed development, while it should be noted that no public embayments are provided within the development.

4.5. Indicate how access to the proposed site(s) will be obtained for all alternatives.

The complex will gain access from Protea Street as per the proposed Site Development Plan.

4.6.	SG Digit code(s) of the proposed site(s) for all alternatives: Erf 103	C	0	3	9	0	0	1	1	0	0	0	0	0	1	0	3	0	0	0	0	0
	Erf 104	C	0	3	9	0	0	1	1	0	0	0	0	0	1	0	3	0	0	0	0	0
	Portion of Rotterdam Street	C	0	3	9	0	0	1	1	0	0	0	0	0	2	4	5	0	0	0	0	0

4.7.	Coordinates of the proposed site(s) for all alternatives:			
	Latitude (S)	Erf 103: 34° Erf 104: 34°	0' 0'	30.58" 32.90"
	Longitude (E)	Erf 103: 23° Erf 104: 23°	19' 20'	59.47" 1.86"

SECTION C: LEGISLATION/POLICIES AND/OR GUIDELINES/PROTOCOLS

1. Exemption applied for in terms of the NEMA and the NEMA EIA Regulations

Has exemption been applied for in terms of the NEMA and the NEMA EIA Regulations. If yes, include a copy of the exemption notice in Appendix E18.	YES	NO
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2. Is the following legislation applicable to the proposed activity or development.

The National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008) ("ICMA"). If yes, attach a copy of the comment from the relevant competent authority as Appendix E4 and the pre-approval for the reclamation of land as Appendix E19.	YES	NO
The National Heritage Resources Act, 1999 (Act No. 25 of 1999) ("NHRA"). If yes, attach a copy of the comment from Heritage Western Cape as Appendix E1.	YES	NO
The National Water Act, 1998 (Act No. 36 of 1998) ("NWA"). If yes, attach a copy of the comment from the DWS as Appendix E3.	YES	NO
The National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) ("NEM:AGA"). If yes, attach a copy of the comment from the relevant authorities as Appendix E13.	YES	NO
The National Environmental Management Waste Act (Act No. 59 of 2008) ("NEM:WA")	YES	NO
The National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004 ("NEMBA").	YES	NO
The National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) ("NEMPAA").	YES	NO
The Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983). If yes, attach comment from the relevant competent authority as Appendix E5.	YES	NO

3. Other legislation

List any other legislation that is applicable to the proposed activity or development.

- ✓ Spatial Planning Land Use Management Act 16 of 2013

4. Policies

Explain which policies were considered and how the proposed activity or development complies and responds to these policies.

Various policy documents were consulted during the conceptualisation of this project. These documents include:

1. Provincial SDF

The Western Cape Spatial Development Framework (PSDF) does not only make provision for a new spatial development pattern for the province but also identifies where development may or may not occur. The provisions must therefore be considered for any development proposal.

A number of principles are highlighted in the framework; namely spatial justice, spatial sustainability, spatial resilience, spatial efficiency, accessibility and quality of life and good governance to which developments must adhere to. The proposed development of the property adheres to these principles. Please refer to section 9.5.2 of the town planning report (Appendix L.3.).

✓ Protection of agricultural land:

The PSDF indicates that all agricultural land must be protected. The current zoning of the property is Institutional I, it is therefore not currently being used for agricultural purposes. Furthermore, the property is located within the urban edge in terms of the Bitou Spatial Development framework and is earmarked for urban development. Therefore, the property is located in an area no longer earmarked for agricultural purposes. This goal in the PSDF is therefore not relevant to this property.

✓ Sense of place:

The character of the area where the proposed development will be located is gradually changing from rural to urban, with both the properties adjacent to portion 103 also being earmarked for development.

✓ Densification:

In terms of the PSDF higher densities and more compact cities must be established. According to the framework *"the figure of an average gross density of 25 du/ha should be seen as a hurdle below which urban settlements will not perform adequately, and above which a number of positive opportunities begin to be achievable."*

This proposal entails the rezoning and subdivision of institutional land, within the urban edge of the Bitou Municipality, which has been earmarked for residential development. The proposal will be developed with a density of approximately 15.57 dwelling units per hectare, which will minimise urban sprawl. The proposal is therefore in line with the PSDF.

2. Bitou SDF

As explained in the town planning report (Appendix L.3.) the Bitou SDF sets out the Land Use Proposals for Wittedrift as depicted in Figure 1. The most important of these proposals which impact on Erven 103 and 104 are the following:

- 1) The erven fall within the Urban Edge of Wittedrift.
- 2) The erven are earmarked for priority housing development.
- 3) The erven form a cluster of four smaller parcels in the central parts of Wittedrift which could be utilised for Bonded, Gap and/or Social Housing purposes.

- 4) The Wittedrift Land Use Budget of 2016 – 2040 makes provision for an increase of 152 residential units between 2016 – 2025 requiring 5ha of Wittedrift Urban area to achieve this. This would result in a residential density of 30units/ha. Between 2025 – 2040 an additional increase of 253 residential units requiring 9ha of Wittedrift Urban area is envisaged. This would result in a residential density of 28units/ha.

In achieving the objective of the Bitou Municipality for the 2016 – 2025 period, the consolidation of erven 103, 104 and portion of the Rotterdam Street reserve measuring in total 3,3401ha would be able to render a maximum of 100units at 30units/ha. However, Erf 103 is only partially developable (approximately 1/3 is developable) and will render less.

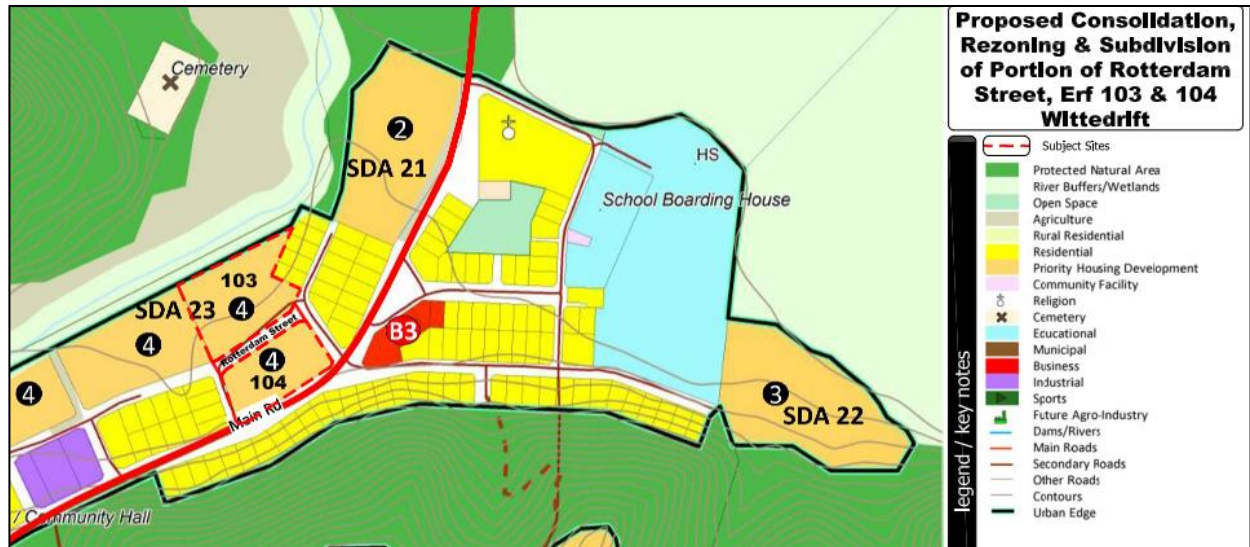


Figure 1: Extracted plan from Bitou SDF

Integrated Development Plan (IDP)

With the proposed development falling within the urban edge, compliance with the IDP is ensured as the strategic planning document guiding where development should take place.

5. Guidelines

List the guidelines which have been considered relevant to the proposed activity or development and explain how they have influenced the development proposal.

Guidelines	Describe how the proposed development complies with and responds:
Guideline on Public Participation (2013)	Guideline considered in the undertaking of the public participation for the proposed development. All relevant provisions contained in the guideline were adhered to in the basic assessment process as appropriate, except where an exemption/ deviation has been granted by the Competent Authority.
Guideline on Alternatives (2013)	Guideline considered when identifying and evaluating possible alternatives for the proposed development. Alternatives that were considered in the impact assessment process are reported on in this Basic Assessment Report (see section E)
Guideline on Need and Desirability (2013)	Guideline considered during the assessment of the Need and Desirability of the proposed development project.
Guideline on Environmental Management Plans (2005)	Guideline considered in the compilation of the EMP attached to this Basic Assessment Report.

Guideline for the Review of Specialist Input into the EIA Process (2005)	Guideline considered during the review and integration of specialist input into this Basic Assessment Report
External Guideline: Generic Water Use Authorization Application Process (2007)	Guideline considered during the process of applying for the required water use authorization
Integrated Environmental Management Information Series 5: Impact Significance (2002)	Guideline considering during the identification and evaluation of potential impacts associated with the proposed development, and the reporting thereof in this Basic Assessment Report
Integrated Environmental Management Information Series 7: Cumulative Effects Assessment (2004)	Guideline considering during the assessment of the cumulative effect of the identified impacts.
Circular EADP 0028/2014: One Environmental Management System	Guideline regulating multiple environmental activities under NEMA, including mining related activities.
Guideline for determining the scope of specialist involvement in EIA processes, June 2005.	Guideline considered when determining the scope of specialist involvement for this assessment.
Guideline for involving biodiversity specialists in the EIA process, June 2005.	Guideline considered to guide biodiversity specialist input in this assessment.
Guideline for involving heritage specialists in the EIA process, June 2005.	Guideline considered to guide the heritage specialist input in this assessment.

6. Protocols

Explain how the proposed activity or development complies with the requirements of the protocols referred to in the NOI and/or application form

Protocols have been promulgated as per the GNR 320, Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in Terms of Sections 24(5)(A) And (H) and 44 of the National Environmental Management Act, 1998, When Applying for an EA, 20th March 2020.

The following is a summary of the development footprint environmental sensitivities identified by the DEA Screening Tool (see Appendix I.2).

Table 3: DEA screening tool theme results.

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		
Palaeontology Theme		X		

Plant Species Theme			X	
Defence Theme				X
Terrestrial Biodiversity Theme	X			

Based on these results, the Screening tool recommended the following specialist assessments be conducted:

- Agricultural Impact Assessment:
 - During the undertaking of the ground truthing by the Freshwater Specialist, it was established that the site was highly transformed, and had not been utilized for agricultural purposes in a long time. Therefore, no assessment will be conducted.
- Landscape/Visual Impact Assessment:
 - Heritage Western Cape provided a response to a Notification of Intent to Develop, stating that a Heritage Impact Assessment (HIA) is required, which does that satisfy the provisions of section 38(3) of the National Heritage Resource Act, (Act 25 of 1999). With specific reference to visual impacts on cultural landscapes.
- Archaeological and Cultural Heritage Impact Assessment
 - Heritage Western Cape provided a response to a Notification of Intent to Develop, stating that a Heritage Impact Assessment (HIA) is required, which does that satisfy the provisions of section 38(3) of the National Heritage Resource Act, (Act 25 of 1999).
- Palaeontology Impact Assessment
 - Heritage Western Cape provided a response to a Notification of Intent to Develop, stating that a Heritage Impact Assessment (HIA) is required, which does that satisfy the provisions of section 38(3) of the National Heritage Resource Act, (Act 25 of 1999).
- Terrestrial Biodiversity Impact Assessment
 - This assessment will not be conducted. Despite the screening tool result, ground truthing has indicated that the portion of the site that is intended to be developed, has been highly transformed, with the dominant grass species being kikuyu (*Pennisetum Clandestinum*) and *Eragrostis curvula*.
- Aquatic Biodiversity Impact Assessment and Hydrology Assessment
 - A Freshwater Impact Assessment has been initiated to assess the watercourse and wetland environment, situated at the north-eastern portion of proposed site.
- Socio-Economic Assessment
 - This assessment will not be conducted as the state Socio-Economic profile and the potential impacts of such a development are clearly described in the local municipalities IDP and SDF, as well as the Town Planning report.
- Plant Species Assessment
 - This assessment will not be conducted. The Freshwater Impact Assessment Report has included the present state of the vegetation and habitat during ground truthing. It has been determined that the portion of the site that is planned for major development, has been transformed, with minimal indigenous vegetation still present.
- Animal Species Assessment
 - This assessment will not be conducted. The Freshwater Impact Assessment Report has included the present state of the vegetation and habitat during ground truthing. It has been determined that the portion of the site that is planned for major development, has been transformed.

In response to the recommendations, the following studies were compiled for the proposed development, which is will address all of the potential impact concerns:

- Freshwater Impact Assessment Report
- Engineering Services Report

- A Baseline Study addressing Cultural and Visual Impacts on site.

SECTION D: APPLICABLE LISTED ACTIVITIES

List the applicable activities in terms of the NEMA EIA Regulations

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.
12	The development of - (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs - (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse.	Preferred Alternative 1 Layout: Will occur on the edge of the terrace, with slope stabilization measures and stormwater control measures (gabions and berms), with the possibility of encroachment into the no-go zone, to approximately tie-in with the 1:100 year floodline, (See Appendix B1.1). Alternative 2 Layout: Construction of the community centre and pool would be undertaken within the aquatic no-go zone, therefore falling within 32m's of the watercourse.
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, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;	The final location of infilling will take place where infilling may be necessary is not yet certain. It may also be the case that no infilling will be required.
27	The clearance of an area of 1ha or more, but less than 20 hectares of indigenous vegetation.	Areas of development designated for major development on Erf 104 and Erf 103, are areas where historical transformation, due to anthropogenic disturbance, has resulted in the loss of most of the indigenous vegetation on the site.
Activity No(s):	Provide the relevant Basic Assessment Activities as set out in Listing Notice 3	Describe the portion of the proposed development to which the applicable listed activity relates.
12	The clearance of an area of 300 square metres or more of indigenous vegetation. i. Western Cape (i) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;	The site falls within an area demarcated as garden Route Shale Fynbos, which is categorised as vulnerable. However, the site has undergone major transformation attributed to agricultural changes, and at present, very little indigenous vegetation remains within the mapped CBA area.
Note:		
<ul style="list-style-type: none"> • The listed activities specified above must reconcile with activities applied for in the application form. The onus is on the Applicant to ensure that all applicable listed activities are included in the application. If a specific listed activity is not included in an Environmental Authorisation, a new application for Environmental Authorisation will have to be submitted. • Where additional listed activities have been identified, that have not been included in the application form, and amended application form must be submitted to the competent authority. 		

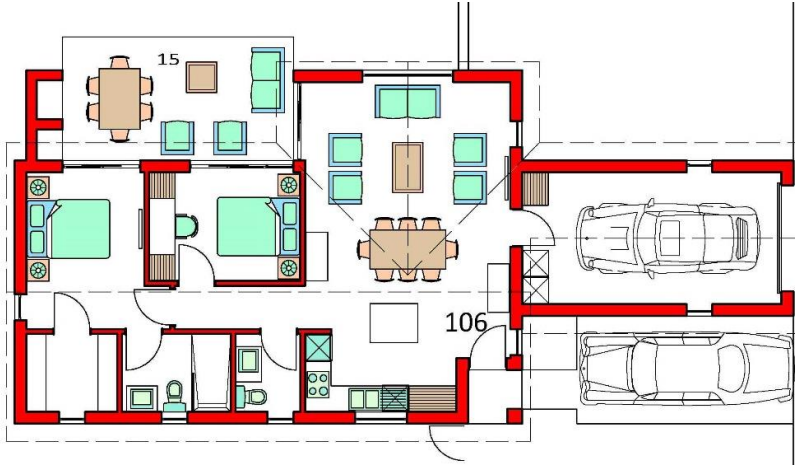
List the applicable waste management listed activities in terms of the NEM:WA

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Category A	Describe the portion of the proposed development to which the applicable listed activity relates.
Not Applicable		

List the applicable listed activities in terms of the NEM:AQA

Activity No(s):	Provide the relevant Listed Activity(ies)	Describe the portion of the proposed development to which the applicable listed activity relates.
Not Applicable		

SECTION E: PLANNING CONTEXT AND NEED AND DESIRABILITY

1.	<p>Provide a description of the preferred alternative.</p> <p>The Preferred Alternative will entail the following components:</p> <p>Retirement housing units 53 Retirement Units of between 104m² and 124m² (depending on whether they have single or double garages) in extent. These units are to be sold under Sectional Title to those retirees of over 55 years of age who wish to reside there and those under 55 years who purchase for a household member or private individual who is 55 years and over and who would also reside there.</p>  <p style="text-align: center;"><i>Figure 2: Option for proposed housing unit option.</i></p> <p>Community centre A community Centre is planned to be positioned close to the entrance of the retirement village with public parking and northern views. The community Centre will have the following components:</p> <ul style="list-style-type: none"> • Library • Kitchen • Utility/storeroom • Hair salon • Gym • Nurses Station • Office • Wheelchair friendly toilet facilities • Events Hall • Patio and braai <p>The community centre building will have a size of approximately 183m².</p>
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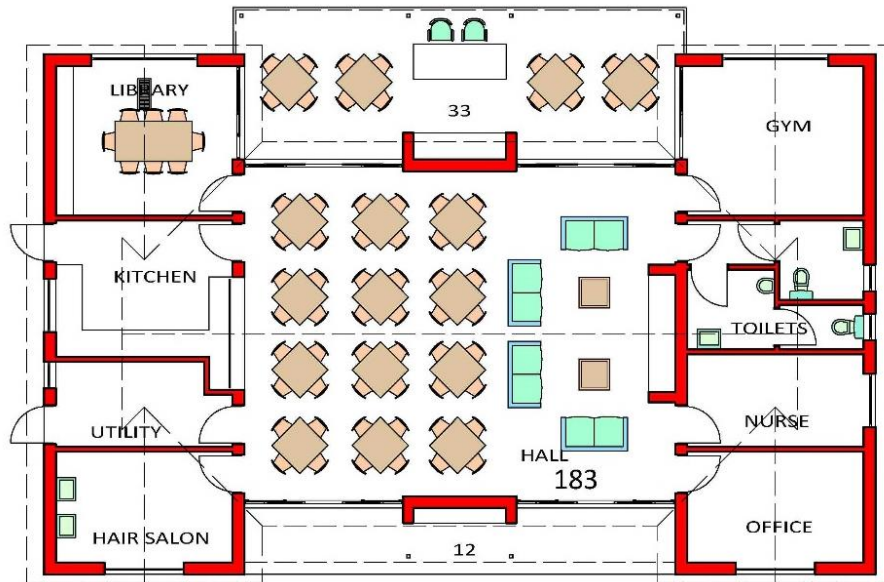


Figure 3: Community Centre Proposed Layout

Assisted living

The Assisted Living facility will also be close to the entrance and will share visitor's parking with the community centre. An assisted living facility with the following components:

- o Six en-suite bedrooms for those requiring assistance
- o Assisted living quarters
- o Office
- o Kitchen
- o Laundry
- o Dining and lounge facility
- o Yard

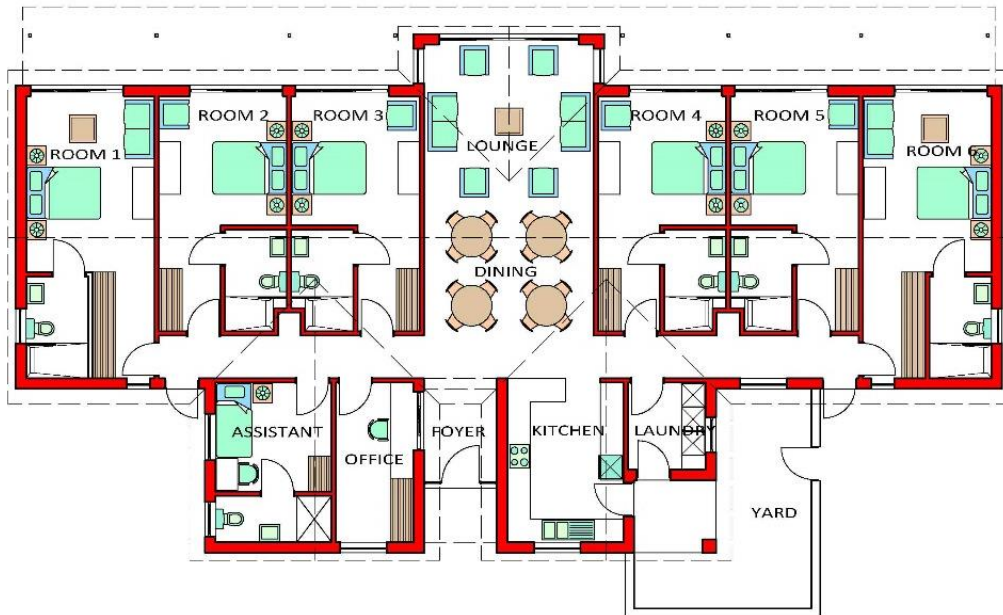


Figure 4: Proposed assisted living

Open Space

Mature Oak trees that occur on the site will be retained in an open space accessible to all the residents. Most of the Northern Section of the site, close to the Bosfontein River will also be kept as a public open space accessible to the inhabitants.

Access

Access to the site will be via Protea street as per the Site Development Plan (Appendix B1.1) Town Planning Report is attached in L.3. for a visual representation of the abovementioned and further reference. There are no architectural drawings at this time.

2. Explain how the proposed development is in line with the existing land use rights of the property as you have indicated in the NOI and application form? Include the proof of the existing land use rights granted in Appendix E21.

Erf 103 and 104 are currently zoned as Institutional I with the section of Rotterdam Street between the two erven zoned as Transport II.

The intention is to consolidate Erf 103, 104 and a portion of Rotterdam Street, and rezone this as Residential Zone II. The table below compares the proposed development to the landuse restrictions as per this zone, and finds that the development fully complies with the landuse restrictions, a motivation has been compiled to consolidate and rezone these sites, a copy has been included in Appendix E.21.1.

Table 4: Landuse restrictions as per Residential Zone II compared to proposed development.

RESIDENTIAL ZONE II			
Based on the Draft Site Development Plan - 14			
LAND USE RESTRICTIONS		PROPOSED DEVELOPMENT	COMPLIES YES/ NO
Density	A maximum of 20 units/ha Gross	53 units on 3.3401ha Group Housing / Retirement Village is 15.87 units/ha	YES
Communal Open Space	130m ² / Dwelling Unit where there is no distinction between communal open space and private open space and private outdoor space, communal open space and private open space requirements shall be replaced by a combined open space requirement of at least 130m ² per dwelling unit. This would amount to 53 units x 130m ² = 6980m ²	The SDP provides the following building footprint areas: 53 Group Housing Units including a Garage – 53 x 106m ² - 5618m ² - 1 Community Centre at 260m ² - 1 Assisted Care Complex at 183m ² - 1 Refuse Room at 25m ² making a total of a 6086m ² footprint. This leaves 27315m ² of Communal Open Space being equal to 515m ² per unit.	YES
Height	At most two storeys	All buildings will be Single Storey	YES
Street Building Line	Zero Street Building Line	5m Building Line on Main Road and 3m on all other Boundaries	YES
Side Building Line	Zero Side Building Line	Sectional Title Project	YES
Parking	At least two bays per Grouped House	53 units x 2 bays per unit – 106 bays supplied	YES
Street Width	Normally 10m or 8m in a cul-de-sac	Sectional Title Project – however 10m clear space has been provided on all internal roads.	YES

3. Explain how potential conflict with respect to existing approvals for the proposed site (as indicated in the NOI/and or application form) and the proposed development have been resolved.

No conflicts have yet been experienced. In terms of obtaining the correct zoning for the proposed development the following steps guide this process:

1. Purchase a portion of Rotterdam Street Reserve (approximately 2 921m²). This will require a closure application for portion of the Rotterdam Street Reserve.
2. The consolidation of Erven 103 and 104 Wittedrift with that portion of Rotterdam Street Reserve which was closed and successfully acquired by The Home Market NPC.
3. The rezoning of the consolidated erf (with new erf number) to Residential Zone II with a Primary Use being Group Housing.
4. A Consent Use for Dwelling Houses and Retirement Village.
5. Removal of any restrictive conditions in the Title Deed.

The proposed development will include 53 units with a gross residential density of 15.57 units per Ha, below the 20 units per Ha prescribed density prescribed for Residential Zone II.

4. Explain how the proposed development will be in line with the following?

4.1 The Provincial Spatial Development Framework.

Provincial SDF

The Western Cape Spatial Development Framework (PSDF) does not only make provision for a new spatial development pattern for the province but also identifies where development may or may not occur. The provisions must therefore be considered for any development proposal.

A number of principles are highlighted in the framework; namely spatial justice, spatial sustainability, spatial resilience, spatial efficiency, accessibility and quality of life and good governance to which developments must adhere to. The proposed development of the property adheres to these principles. Please refer to section 9.5.2 of the town planning report (Appendix L.3.).

✓ **Protection of agricultural land:**

The PSDF indicates that all agricultural land must be protected. The current zoning of the property is Institutional I, and is therefore not currently being used for agricultural purposes. Further, the property is located within the urban edge in terms of the Bitou Spatial Development framework and is earmarked for urban development. Therefore, the property is located in an area no longer earmarked for agricultural purposes. This goal in the PSDF is therefore not relevant to this property.

✓ **Sense of place:**

The character of the area where the proposed development will be located is gradually changing from rural to urban, with the Both the properties adjacent to portion 103 also being earmarked for development.

✓ **Densification:**

In terms of the PSDF higher densities and more compact cities must be established. According to the framework *“the figure of an average gross density of 25 du/ha should be seen as a hurdle below which urban settlements will not perform adequately, and above which a number of positive opportunities begin to be achievable.”*

This proposal entails the rezoning and subdivision of institutional land, within the urban edge of the Bitou Municipality, which has been earmarked for residential development. The proposal will be developed with a density of approximately 15.57 dwelling units per hectare, which will minimise urban sprawl. The proposal is therefore in line with the PSDF.

4.2 The Integrated Development Plan of the local municipality.

The proposed erven are included inside the urban edge, therefore Bitou municipality plans to develop the area. Further as explained in the Town Planning Report the Wittedrift Land Use Budget of 2016-2040 makes provision for an increase of 152 residential units between 2016-2025 requiring 5ha of Wittedrift Urban Area to achieve this.

4.3. The Spatial Development Framework of the local municipality.

As explained in the Town Planning Report (Appendix L.3.) the Bitou SDF sets out the Land Use Proposals for Wittedrift. The most important of these proposals which impact on Erven 103 and 104 are the following:

- 1) The erven fall within the Urban Edge of Wittedrift.
- 2) The erven are earmarked for priority housing development.

- 3) The erven form a cluster of four smaller parcels in the central parts of Wittedrift which could be utilised for Bonded, Gap and/or Social Housing purposes.
- 4) The Wittedrift Land Use Budget of 2016 – 2040 makes provision for an increase of 152 residential units between 2016 – 2025 requiring 5ha of Wittedrift Urban area to achieve this. This would result in a residential density of 30units/ha. Between 2025 – 2040 an additional increase of 253 residential units requiring 9ha of Wittedrift Urban area is envisaged. This would result in a residential density of 28units/ha.

In achieving the objective of the Bitou Municipality for the 2016 – 2025 period the consolidation of erven 103, 104 and portion of the Rotterdam Street reserve measuring in total 3,3401ha would be able to render a maximum of 100units at 30units/ha. However, Erf 103 is only partially developable (approximately 1/3 is developable) and will render less.

4.4. The Environmental Management Framework applicable to the area.

There is no Environmental Management Framework available for the area.

5. Explain how comments from the relevant authorities and/or specialist(s) with respect to biodiversity have influenced the proposed development.

This is the pre-application bar- no comments have been received.

6. Explain how the Western Cape Biodiversity Spatial Plan (including the guidelines in the handbook) has influenced the proposed development.

The majority of the site is an ESA 1 with the Northern most section containing a Terrestrial CBA1. However, the area mapped as the ESA has been completely degraded as a result of invasive alien vegetation as well as footpaths and occurrence of grass types such as Kikuyu.

CBA1: Terrestrial has been mapped along the northern boundary of erf 103, adjacent to the Bosfontein River. This area is also invaded with alien vegetation. The CBA1: Terrestrial area in total is expected to be approximately 0.2ha, of which no area will be cleared for development as this area serves as a buffer area for the Bosfontein river.

ESA1: Terrestrial covers approximately 2.6 ha of the site. The majority of this area will be “lost” as a result of the proposed development. However, this area has already been transformed being within the Urban Edge of Wittedrift.

ESA2: The Terrestrial restore area represents a small portion of the site approximately 200m².

7. Explain how the proposed development is in line with the intention/purpose of the relevant zones as defined in the ICMA.

The site is not applicable to an ICMA zone.

8. Explain whether the screening report has changed from the one submitted together with the application form. The screening report must be attached as Appendix I.

The original screening report initiated during the NOI was undertaken on the 1st of October 2019 (Appendix I.1), however since this report, the screening tool has been updated. An additional report was undertaken on the 23rd of June 2020 (Appendix I.2).

There are three changes since the original screening tool.

- 1) The Agricultural theme had changed from Medium Sensitivity to High Sensitivity.

	<ul style="list-style-type: none"> - It had been determined that the site had been highly transformed by anthropogenic activity, and had not been utilized for agricultural purposes in a long time. <p>2) There is an additional Animal Species Theme identified, the sensitivity has been identified as medium.</p> <ul style="list-style-type: none"> - The following species were identified: <i>Amphibia-Afrivalus knysnae</i>, <i>Insecta-Aloeides pallida juno</i>; <i>Mammalia-Philantomba monticola</i>; <i>Reptilia-Tetradactylus fitzsimonsi</i>; <i>Sensitive species</i> and <i>Insecta-Aloeides thyra orientis</i>. - Due to the historical transformation of the site, due to the extensive anthropogenic disturbance, and the ground truthing undertaken by the specialists involved, it can be determined that none of these species are predicted to reside the areas identified for the proposed development. There is a probability that these species may be found within the wetland environment, and vegetated portion of the site, which is to be utilized as open space, with minimal construction disturbance predicted. <p>3) The Aquatic Biodiversity theme has changed from low sensitivity in the original report, to very high sensitivity in the latest screening report.</p> <ul style="list-style-type: none"> - This further motivates the need for the undertaking of the Freshwater Impact Assessment Report, which was completed in detail, by Debbie Fordham, of SES.
9.	Explain how the proposed development will optimise vacant land available within an urban area.
	<p>The proposed development as stated above will accommodate the need for residential development as expressed in the Bitou SDF. Since the properties earmarked for this development are currently vacant, costing the municipality in maintenance cost, the commencement of this development could start to generate an income from these properties.</p> <p>Further, in a market assessment that was done by Urban Econ, it was determined that Wittedrift has been experiencing a rise in the demand of permanent homes for families as well as retirees. It was also determined that there is a need for retirement homes that are below the R2 Mil mark. If this development takes place, it will also lead to the creation of employment opportunities for individuals in the surrounding area.</p>
10.	Explain how the proposed development will optimise the use of existing resources and infrastructure.
	<p>Erf 103 and 104 are two separate erfs that are located centrally within the town of Wittedrift. With properties currently lying vacant, resource optimisation is impossible. If the properties are developed as proposed, the erfs will be utilised in such a manner where areas of environmental sensitivity are incorporated into the development. This is evident from adherence to the buffer set out in the Freshwater Impact Assessment Report (See Appendix G.1.)</p>
11.	Explain whether the necessary services are available and whether the local authority has confirmed sufficient, spare, unallocated service capacity. (Confirmation of all services must be included in Appendix E16).
	<p>The Engineers are awaiting a letter of confirmation from Bitou Local Municipality.</p>
12.	In addition to the above, explain the need and desirability of the proposed activity or development in terms of this Department's guideline on Need and Desirability (March 2013) or the DEA's Integrated Environmental Management Guideline on Need and Desirability. This may be attached to this BAR as Appendix K.
	<p>In addition to the above, the Department's guideline on Need and Desirability (March 2013) provides a strong base for the proposed development. The guideline references the New Growth Path (NGP) (2010) when referring to the strategic context for the consideration of need and desirability. It is important to understand how the proposed development falls within the strategic context in order to fully recognise the need and desirability.</p>

The NGP formulated various principles to guide “the transition to an environmentally sustainable low-carbon economy, moving from policy, to process, to action”, the principles listed below highlight how need and desirability of the proposed development are aligned with the NGP in terms of the Department's guideline on Need and Desirability (March 2013):

- Just, ethical and sustainable:
The proposed development recognises South Africa as a developing country, the proposed development will address the ever-increasing demand for affordable retirement accommodation in the Bitou area, and is in line with Bitou's future plans for the residential development on the subject site and surrounding areas in Wittedrift.
- Global solidarity: The proposed development aims to justly balance national interests, such as battling the housing backlog.
- Ecosystems protection:
Acknowledgement that human wellbeing is dependent on the health of the planet. Through this development the ongoing dumping, and uncontrolled disturbance that has occurred in the sensitive, functional Bosfontein River wetland, will cease, and the area will be properly monitored and managed, to ensure successful retainment of its current state, and the integration and wellbeing of the retirement community that will interact with this area.
- Full cost accounting:
Internalise both environmental and social costs in planning and investment decisions, recognising that the need to secure environmental assets may be weighed against the social benefits accrued from their use. In this regard, the Bosfontein wetland habitat, will be integrated into the development, and be classified as open space for the benefit of the community, while under acceptable environmental management, maintenance and monitoring.
- Opportunity focused: The proposed development has sought to identify synergies between sustainability, growth, competitiveness and employment creation, in order to attain equality and prosperity. The construction of the proposed development will benefit the local economy in the short to medium term, as well as provide a base for skills transfer while providing housing which will drive socio-economic growth. During operational phase, it will offer long-term job opportunities, to the surrounding community, for people of various skills levels.
- Effective participation of social partners:
The environmental assessment will be subject to public participation, that would introduce the opportunity for the dialogue that will result in the identification and acknowledgment of mutual responsibilities, differences, achieve consensus through compromise.
- Accountability and transparency:
Undertaking the basic assessment process allows for accountability and transparency of the proposed development in an integrated manner, as the documents will be submitted for public participation, to any interested and affected party, and will be subject to comments, rejections and appeals, if necessary.

In the National Framework for Sustainable Development (“NFSD”) (2008), it states that “*The achievement of sustainable development is not a once-off occurrence and its objectives cannot be achieved by a single action or decision.*” As such, it is not expected that this proposed development will single handily achieve sustainable development, but it will contribute towards achieving sustainable development.

“*The process to achieve sustainable development is an ongoing process that requires a particular set of values and attitudes in which economic, social and environmental assets that society has at its disposal, are managed in a manner that sustains human well-being without compromising the ability of future generations to meet their own need.*” The need and desirability of the proposed development is further emphasized as the proposed development forms part of the aforementioned ongoing process. The proposed development conceptualizes the particular set of values and attitudes in which economic, social and environmental assets are required to be managed in order to sustain human well-being without compromising the ability of future

generations to meet their own needs and effectively achieve sustainable development. This is done by providing affordable retirement housing in an area where a backlog has been identified, pertaining to the elderly community. This will undoubtedly improve human well-being, for the elderly community, and by driving socio-economic development, will benefit the surrounding community and the municipality.

In the South African current state, developmental needs (community needs) must firstly be determined through the planning processes (IDP, SDF and EMF). The need may be at the local, regional or national level. The proposed development is aligned with the planning processes and endeavours to contribute towards efforts aimed at reducing the housing backlog which is facing South Africa on a local, regional and national level. The proposed development will form part of an ongoing process to achieve sustainable development.

The Department's guideline on Need and Desirability (March 2013) states it is necessary to turn to the principles contained in NEMA in order to define "need" that relates to the interests and needs of the broader public.

In this regard the NEMA principles specifically inter alia require that environmental management must:

- Place people and their needs at the forefront of its concern and equitably serve their interests;
- Be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option;
- Ensure that decisions take into account the interests, needs and values of all interested and affected parties; and
- Ensure that the environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.

The Need and Desirability of the proposed development in terms of the Department's guideline on Need and Desirability (March 2013) is further emphasised through its alignment with the NEMA principles. The alignment of the proposed development with the aforementioned principles are evident as the proposed development aims to place people and their needs at the forefront by providing formal housing and the availability of services, where a retirement housing backlog has been identified. Relative specialist reports have been completed to aid decision making and fully understand all elements of the environment on site. As the specialist reports provide an insight into the environmental elements, provisions have been made for 3 stringent public participation phases in order to take into account the interests, needs and values of all interested and affected parties. NEMA makes it evident that proposed developments must ensure that the environment and its resources must serve the public interest while protecting the environment. The need and desirability of the proposed development can be further argued as the provision of housing and services directly serves the people.

The proposed development will serve the public's social, economic and ecological needs equitably. Through the identification of the Bosfontein River wetland habitat, the restriction of the development footprint and integration of a habitat in need of security, the proposed development will strive to secure ecological integrity, while the provision of housing would impact upon the job and business market at a local and regional level, extending from short-term to long-term, for the benefit of the public.

SECTION F: PUBLIC PARTICIPATION

The Public Participation Process ("PPP") must fulfil the requirements as outlined in the NEMA EIA Regulations and must be attached as Appendix F. Please note that If the NEM: WA and/or the NEM: AQA is applicable to the proposed development, an advertisement must be placed in at least two newspapers.

1. Exclusively for linear activities: Indicate what PPP was agreed to by the competent authority. Include proof of this agreement in Appendix E22.

A public participation plan has been drawn up for the proposed project including all surrounding properties within 100m radius from the proposed site (see Appendix F.2).

2. Confirm that the PPP as indicated in the application form has been complied with. All the PPP must be included in Appendix F.

As per the Public Participation Plan attached in Appendix F.2. The following public participation has been conducted:

- Notice boards (as per Appendix F.3) in Afrikaans and English will be fixed at the following locations:
 - ✓ Proposed entrance located at the corner of Protea Street and Rotterdam Street.
 - ✓ Corner of Kamassie Street and Main Road.
- An extensive I&AP database has been compiled, which identifies affected adjacent landowners, authorities, organs of state and other affected parties (See Appendix F.1 and F.2).
 - ✓ Notification will be via email notification, direct telephonic calls, Whatsapp Broadcasts, site notices and advertisement.
- An advertisement will be placed in the George Herald, a newspaper which has both print and online readership, on 02nd July 2020.
- The proposal will also be advertised through the Beaufort West Municipality notification systems.
- I&AP's who do not have access to email:
 - ✓ Will be notified of the process via SMS or WhatsApp medium.
 - ✓ Information containing all relevant facts in respect of the application or proposed application will also be circulated in this way.

The public participation commenting period commenced on Friday, 03rd July 2020, and will conclude on Monday, 17th August 2020.

3. Confirm which of the State Departments and Organs of State indicated in the Notice of Intent/application form were consulted with.

- CapeNature
- Breede Gouritz Catchment Management Agency
- Western Cape Government: Department of Transport and Public Works
- Western Cape Government: Department of Agriculture
- Heritage Western Cape

4. If any of the State Departments and Organs of State were not consulted, indicate which and why.

- DEA&DP Coastal Management – as the development will not take place in close proximity of any coastal property.

5. if any of the State Departments and Organs of State did not respond, indicate which.

Will be addressed following public participation.

6. Provide a summary of the issues raised by I&APs and an indication of the manner in which the issues were incorporated into the development proposal.

Will be addressed following public participation

Note:

A register of all the I&AP's notified, including the Organs of State, and all the registered I&APs must be included in Appendix F. The register must be maintained and made available to any person requesting access to the register in writing.

The EAP must notify I&AP's that all information submitted by I&AP's becomes public information.

Your attention is drawn to Regulation 40 (3) of the NEMA EIA Regulations which states that "Potential or registered interested and affected parties, including the competent authority, may be provided with an opportunity to comment on reports and plans contemplated in subregulation (1) prior to submission of an application but **must** be provided with an opportunity to comment on such reports once an application has been submitted to the competent authority."

All the comments received from I&APs on the pre -application BAR (if applicable and the draft BAR must be recorded, responded to and included in the Comments and Responses Report and must be included in Appendix F.

All information obtained during the PPP (the minutes of any meetings held by the EAP with I&APs and other role players wherein the views of the participants are recorded) and must be included in Appendix F.

Please note that proof of the PPP conducted must be included in Appendix F. In terms of the required "proof" the following is required:

- a site map showing where the site notice was displayed, dated photographs showing the notice displayed on site and a copy of the text displayed on the notice;
- in terms of the written notices given, a copy of the written notice sent, as well as:
 - if registered mail was sent, a list of the registered mail sent (showing the registered mail number, the name of the person the mail was sent to, the address of the person and the date the registered mail was sent);
 - if normal mail was sent, a list of the mail sent (showing the name of the person the mail was sent to, the address of the person, the date the mail was sent, and the signature of the post office worker or the post office stamp indicating that the letter was sent);
 - if a facsimile was sent, a copy of the facsimile Report;
 - if an electronic mail was sent, a copy of the electronic mail sent; and
 - if a "mail drop" was done, a signed register of "mail drops" received (showing the name of the person the notice was handed to, the address of the person, the date, and the signature of the person); and
- a copy of the newspaper advertisement ("newspaper clipping") that was placed, indicating the name of the newspaper and date of publication (of such quality that the wording in the advertisement is legible).

SECTION G: DESCRIPTION OF THE RECEIVING ENVIRONMENT

All specialist studies must be attached as Appendix G.

1. Groundwater

1.1.	Was a specialist study conducted?	YES	NO
1.2.	Provide the name and or company who conducted the specialist study.		
N/A			
1.3.	Indicate above which aquifer your proposed development will be located and explain how this has influenced your proposed development.		
The aquifer is classified as fractured with a yield of approximately 0.0 – 0.1l/s. Although the susceptibility is considered medium to high, and the vulnerability is considered moderate, the aquifer is considered minor. The surrounding community has been transformed with existing residential housing, therefore the proposed development would be deemed acceptable, as it is of similar nature.			
1.4.	Indicate the depth of groundwater and explain how the depth of groundwater and type of aquifer (if present) has influenced your proposed development.		

According to Cape Farm Mapper:

- The aquifer classification is considered minor.
- The aquifer type is Fractured 0.0 - 0.1 l/s.
- The groundwater depth being approximately 52.86 mbgl.

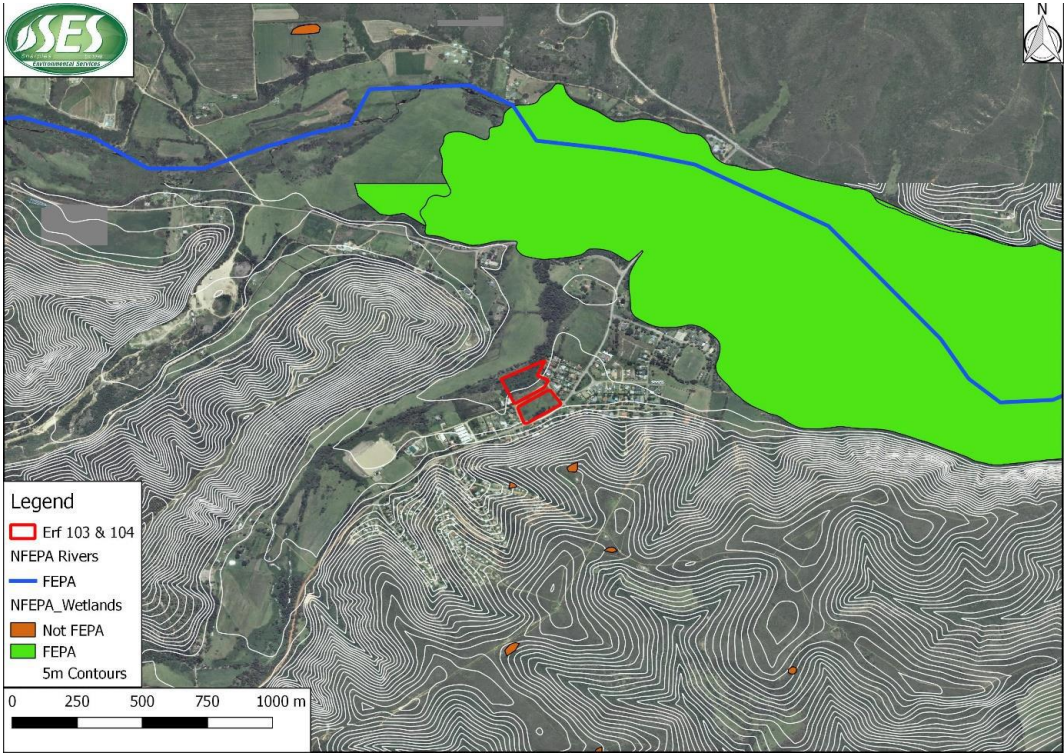
2. Surface water

2.1.	Was a specialist study conducted?	YES	NO
2.2.	Provide the name and/or company who conducted the specialist study.		
<p>Name: Debbie Fordham Company: Sharples Environmental Services cc</p>			
2.3.	Explain how the presence of watercourse(s) and/or wetlands on the property(ies) has influenced your proposed development.		
<p>The presence of the Bosfontein River wetland has limited the extent of the housing and community facility development, as well as the type and placement of wastewater sewer infrastructure, on Erf 103. This does limit the number of housing that could be accommodated across the combined Erf 103 and Erf104.</p> <p>Due to the vicinity of the watercourse/wetland area to the development, and the layout proposal that will cause various levels of disturbance to this wetland area, an environmental assessment has been initiated, as well as a Water Use License Application.</p> <p>It has however provided the ideal environment to implement a natural open space concept, which under efficient maintenance and management, can offer the community multiple benefits. Minimizing the inclusion of hard surfaces, therefore additional runoff. Creating smaller pathways that give the community members a chance to enjoy the natural environment, contributing to their general health and wellbeing.</p>			

3. Coastal Environment

3.1.	Was a specialist study conducted?	YES	NO
3.2.	Provide the name and/or company who conducted the specialist study.		
N/A			
3.3.	Explain how the relevant considerations of Section 63 of the ICMA were taken into account and explain how this influenced your proposed development.		
<p>ICMA was not applicable, as this property is not located on a coastal property and has no impact on a coastal environment.</p>			
3.4.	Explain how estuary management plans (if applicable) has influenced the proposed development.		
<p>Estuary management plans have had no influence on the proposed development, as this property is not located within close proximity to an estuary.</p>			
3.5.	Explain how the modelled coastal risk zones, the coastal protection zone, littoral active zone and estuarine functional zones, have influenced the proposed development.		
<p>None of these zones have influenced the proposed development, as the property does not lie within any of these zones.</p>			

4. Biodiversity

4.1.	Were specialist studies conducted?	YES	NO
4.2.	Provide the name and/or company who conducted the specialist studies.		
<p>Due to the current state of the properties in question, no separate biodiversity assessment was conducted. However, the Freshwater Impact Assessment by Debbie Fordham, of Sharples Environmental Services, has included the findings on the current state of the terrestrial vegetation as well as the aquatic vegetation, during ground truthing.</p>			
4.3.	Explain which systematic conservation planning and other biodiversity informants such as vegetation maps, NFEPA, NSBA etc. have been used and how has this influenced your proposed development.		
<p>The National Freshwater Ecosystem Priority Areas (NFEPA) map provides strategic spatial priorities for conserving South Africa's aquatic ecosystems and supporting sustainable use of water resources. FEPAs were identified based on a range of criteria dealing with the maintenance of key ecological processes and the conservation of ecosystem types and species associated with rivers, wetlands and estuaries (Driver et al. 2011).</p>			
<p>No FEPA habitat was identified within or adjacent to the study site by the NFEPA project (Figure 5). The Bietou River downstream and its associated floodplain wetland was mapped as a FEPA system, as shown in blue and green on the map in the Figure 1 below. As can be observed in Figure 5 and Appendix D of the</p>			
			
<p><i>Figure 5: The National Freshwater Ecosystem Priority Areas (NFEPA) map.</i></p>			
4.4.	Explain how the objectives and management guidelines of the Biodiversity Spatial Plan have been used and how has this influenced your proposed development.		

Following the implementation of the Cape Farm Mapper tool, it has been established that the site is an predominantly ESA 1, this is where major development is proposed, while the Northern most section containing a Terrestrial CBA, will be maintained in its current state (see figure 6). The area mapped as the ESA has been completely degraded as a result of invasive alien vegetation as well as footpaths and occurrence of grass types such as Kikuyu.



Figure 6: CBA and ESA map of proposed site.

CBA1: Terrestrial has been mapped along the northern boundary of erf 103, adjacent to the Bosfontein River. This area is also invaded with alien vegetation. The CBA1: Terrestrial area in total is expected to be approximately 0.2ha, of which no area will be cleared for development as this area serves as a buffer area for the Bosfontein river.

ESA1: Terrestrial covers approximately 2.6 ha of the site. The majority of this area will be "lost" as a result of the proposed development. However, this area has already been transformed being within the Urban Edge of Wittedrift.

ESA2: The Terrestrial restore area represents a small portion of the site approximately 200m².

4.5.	Explain what impact the proposed development will have on the site specific features and/or function of the Biodiversity Spatial Plan category and how has this influenced the proposed development.
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The site has undergone extensive transformation, resulting in very little indigenous vegetation still presently residing on site. The current topography upon which major construction activity is planned, is relatively flat, with some infilling along the terraced slope at the north of the site. This infilling will allow the sewage from the northern most, proposed housing units, to gravitate to the planned sewer network system. Majority of this site is covered in grass species, such as kikuyu (*Pennisetum Clandestinum*) and *Eragrostis curvula*.

A large group of poplar trees (*Populus alba*) are found on the western boundary of the study site. Some individuals grow in-between the mature trees next to Main Road and just upslope of the aquatic habitat. Seven oak trees (*Quercus sp.*) line the southern boundary of the property, next to a grassed stormwater v-drain. A few young Milkwood trees grow close to the stormwater outlet at the south-western corner of the study site. These trees will be maintained throughout construction and will be integrated into the final design.

4.6.	If your proposed development is located in a protected area, explain how the proposed development is in line with the protected area management plan.
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The proposed development is not located in a protected area.

4.7.	Explain how the presence of fauna on and adjacent to the proposed development has influenced your proposed development.
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No detailed faunal assessment was undertaken. It can be noted that following the other impact assessments, it is clear that the adjacent properties are already developed, therefore consideration must be given to avifauna, and domestic fauna, such as pets. No other fauna has been identified, as majority of Erf 104 and a third of 103 are already cleared, and no terrestrial fauna have been identified. The development will be positioned across the vacant area, however a small portion will impact directly/indirectly (depending on alternative layout), upon a portion of the aquatic habitat, that will affect any aquatic fauna located in this area.

It is therefore advised that the Preferred Alternative 1 Layout, be favoured, in order to reduce the impacts within this environment.

Further recommendations have been made in the EMPr (Appendix H), in consideration of fauna on site, this includes:

- The development be fenced off, to prohibit uncontrolled entry into the site, once construction commences. This must remain for the duration of the project, in order to limit the occurrence animals wandering onto site (wild and domestic).
- Fence off any open excavations at night.
- If any animal is found on site, it should be avoided.
- If an animal found on site poses a risk to the labourers (such as snakes), it is advised that a professional snake catcher be contacted to remove it. Until this is done, the labour is advised to avoid the animal.
- Provide awareness training to the labour to instruct and guide them.
- Ensure labourers wear PPE (gloves, boots, and overalls), these do offer some protection should they come into contact with an aggressive animal.

5. Geographical Aspects

Explain whether any geographical aspects will be affected and how has this influenced the proposed activity or development.

The proposed development is located upon what has been identified as a fluvial terrace, with the remnant wetland habitat located along the relic channel at the foot of the fluvial terrace, where the 1:100 year floodplain has been identified.

This has allowed for a clear differentiation between the sensitive and non-sensitive areas, and has limited the extent of the development. While the topography is considered relatively flat, and increasing from north to south of the site. In order to accommodate the infrastructure upon erf 103 (northern portion), infilling and slope stabilization infrastructure must be considered. Depending on the Alternative layout selected, will determine the extent and significance of the impact upon the slope and aquatic habitat.

6. Heritage Resources

6.1.	Was a specialist study conducted?	YES	NO
6.2.	Provide the name and/or company who conducted the specialist study.		
Erik Voigt Architects & Metroplan Town and Regional Planners			
6.3.	Explain how areas that contain sensitive heritage resources have influenced the proposed development.		
It has been determined in the Heritage Assessment Report, December 2019, that there are no heritage resources present on the site or in this existing immediate urban area, therefore, there will be no impact on heritage resources. The possible impact is of a scale consistent with single storey buildings.			

7. Historical and Cultural Aspects

Explain whether there are any culturally or historically significant elements as defined in Section 2 of the NHRA that will be affected and how has this influenced the proposed development.	
According to the Heritage Assessment Report conducted in 2019, December, cultural significance can be defined as: " <i>aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value of significance</i> ". The national estate includes, inter alia, places, buildings, and structures of cultural significance, historical settlements and townscapes, and landscapes and natural features of cultural significance (NHRA).	
Both Erven 103 and 104 Wittedrift have no particular aesthetic or historical significance as they are currently undeveloped and vacant. None of the surrounding structures illustrated above are of architectural significance and must be considered ungradable in terms of HWC's criteria. It would therefore appear that there are no heritage resources on the site or in its setting.	

8. Socio/Economic Aspects

8.1.	Describe the existing social and economic characteristics of the community in the vicinity of the proposed site.
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According to the Bitou Local Municipality, draft SDF, 2019, Wittedrift was historically developed as a service centre to the surrounding farming communities, it is a mixed income development and is recognized as a smaller settlement within the Bitou Local Municipality. It is relatively isolated with limited economic development potential/prospects. The Western Cape Province Housing Demand Database registered a demand of about 330 units in the area.

Wittedrift is identified as a secondary node of significance in the municipality, these are areas which have smaller populations which warrant the provision of typical middle order community facilities (e.g. clinics, pre-schools, primary schools, community hall, library, and municipal satellite office) and have a limited range of economic activities, predominantly serving the local needs. The area is orientated towards ecotourism and agri-tourism, with holiday accommodation and recreation as its primary functions, along with predominantly residential development.

8.2. Explain the socio-economic value/contribution of the proposed development.

Urban-Econ conducted a Residential Market Assessment in February 2019, which established that there is a large demand for retirement homes, as well as the following summary and recommendations:

1. There is a strong and growing demand for retirement accommodation in the Plettenberg Bay area.
2. That middle-income retired households are underserved at present in the local market.
3. The largest gap for new retirement accommodation is in the R800 000 – R1 500 000 price range.
4. While there is a demand for retirement accommodation aimed at older aged individuals in complexes which include frail care facilities, the immediate need is for retirement accommodation with assisted care aimed at an active population in the age range of 50 – 70 years of age.

This development will address this demand within the Plettenberg Bay area, by providing affordable retirement accommodation with the necessary frail care and assisted living units, that are able to support the functioning of the retirement development, resulting in an improved quality of life for the elderly people within the development.

It further provides additional sustainable employment at the complex together with added buying power to support local businesses and providing the Bitou Municipality with an enhanced rate base together with the payment of service charges by the beneficiaries to Bitou over the long term.

8.3. Explain what social initiatives will be implemented by applicant to address the needs of the community and to uplift the area.

The local labour appointed for the construction phase of the development, will be sourced from the local community.

8.4. Explain whether the proposed development will impact on people's health and well-being (e.g. in terms of noise, odours, visual character and sense of place etc) and how has this influenced the proposed development.

The proposed development is directly aligned with Section 26(1) of the Constitution which states that "Everyone shall have the right of access to adequate housing", as it has been identified that there is a high demand for housing, in particular those specifically designed to support the elderly.

During the construction phase, this project will impact upon the surrounding community, by creating various impacts, including, but not limited to dust, noise, visual impacts, and alteration of sense of place. Mitigation exists where possible, and has been discussed in this document, as well as in the EMPr (see Appendix H). It is pertinent to note that these impacts will be somewhat temporary, and those that may linger (ie: visual and alteration to sense of place), may change permanently, but can have a positive impact thereafter.

As the development is uniquely designed to meet the needs of, and support the elderly community, it is clear that this development will have a positive impact on the elderly communities health and well-being, during the operational phase of this project. It will further affect the health and well being of potential employees within the complex, and for the people involved in current or future local businesses, as the development will provide long-term employment opportunities for people of various skill levels, which will impact upon, and improve the health and well-being of their families, as an income is created within many households.

SECTION H: ALTERNATIVES, METHODOLOGY AND ASSESSMENT OF ALTERNATIVES

1. Details of the alternatives identified and considered

1.1.	Property and site alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.
Provide a description of the preferred property and site alternative.	
<p>Erf portions 103 and 104 remain undeveloped and exposed within the Wittedrift area. They are separated by a portion of Rotterdam Road, which has provided efficient access for the public to reach the wetland habitat boundary.</p> <p>The study site has been subject to various anthropogenic impacts, including agricultural impacts (transformation through clearing and ploughing, resulting in very few indigenous terrestrial species). The proposed development area has flat topography and is mainly covered in grass species such as kikuyu (<i>Pennisetum Clandestinum</i>) and <i>Eragrostis curvula</i>. A large group of poplar trees (<i>Populus alba</i>) are found on the western boundary of the study site. Some individuals grow in-between the mature trees next to Main Road and just upslope of the aquatic habitat. Seven oak trees (<i>Quercus sp.</i>) line the southern boundary of the property, next to a grassed stormwater v-drain. A few young Milkwood trees grow close to the stormwater outlet at the south-western corner of the study site. This is one of South Africa's protected tree species and should therefore not be damaged, moved or felled.</p> <p>The area proposed for development is on top of a fluvial terrace on site and covered in terrestrial vegetation with negligible natural habitat remaining. However, the aquatic habitat on site is located downslope of the terrace, largely outside of any development area and holds viable habitat.</p> <p>There are no site alternatives as the developer is the landowner.</p>	
Provide a description of any other property and site alternatives investigated.	
<p>There are no other properties/site alternatives being investigated, as the site has been earmarked for development, as it is located within the urban edge, and the developer is the landowner.</p>	
Provide a motivation for the preferred property and site alternative including the outcome of the site selection matrix.	
<p>There was no site selection matrix applied for the proposed site, as there was no alternative site considered.</p>	
Provide a full description of the process followed to reach the preferred alternative within the site.	

No alternative property was considered, as the site belongs to the developer.

Provide a detailed motivation if no property and site alternatives were considered.

- The developer owns Erf 103 and 104.
- The developer does not have access to any other site within the Wittedrift area, that could potentially be used for development, and that would sufficiently accommodate the proposed development.
- Altering any other site, would not offer the proposed benefits for the identified wetland habitat and watercourse.

List the positive and negative impacts that the property and site alternatives will have on the environment.

Positive Impacts:

- Vacant and disturbed site will be transformed.
- Dumping upon site and uncontrolled disturbance will cease.
- In terms of NEMA Section 28, the Landowner will undertake his responsibilities in terms of Duty of Care.
- The site encompasses a wetland habitat, therefore this provides an opportunity for the this habitat to be integrated into the development, addressed through this process and managed and maintained effectively.

Negative Impacts:

- The oak, milkwoods and poplar trees are at risk of disturbance, if managed poorly.
- The wetland habitat is at risk, due to development impact, if mitigation measures are not implemented.
- The edge of the wetland habitat will be transformed to some extent.

1.2. Activity alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.

Provide a description of the preferred activity alternative.

The preferred alternative 1 (Appendix B1.1), will entail the construction of a retirement village, consisting of 53 housing units, a community centre, an assisted living facility, following the consolidation of Erf 103, 104 and a portion of Rotterdam Street. This will include the allocation of open spaces, including the identified wetland habitat located to the North West of Erf 103.

Provide a description of any other activity alternatives investigated.

No other activity alternatives have been investigated, as the landowner intends on constructing a retirement development.

Provide a motivation for the preferred activity alternative.

As identified in the motivation, the preferred activity alternative will meet an immediate need for retirement housing, for people who are 55+ or for families, of which a member is 55+ years' of age, within the Bitou Municipality and Plettenberg Bay. The preferred activity will offer these retirees a chance to live out their lives in the peace and tranquillity that the small settlement of Wittedrift offers, with basic amenities close at hand, within a development that is equipped with sufficient care and recreational facilities, that usually make this type of housing extremely expensive. This will further create affordable housing, while increasing the rate base, attracting new businesses, and service providers, by growing the population, and economy.

Furthermore, the preferred activity alternative offers protection to the identified Bosfontein wetland habitat and river system, that has been degraded, and polluted by anthropogenic activities, to date. This activity will allow the developer to utilize this as open space, maintained in its natural state. The

establishment of minor encroachment in terms of infilling upon the edge of the buffer zone, and the creation of walkways to cater to the residents, are the approximate extent of disturbance to this area.

The preferred activity will cater to the elderly community, who at this stage in their lives, are undergoing health changes and require additional care and support. Developments equipped with these facilities are not common, due to the associated expenses required, resulting in an immediate need for affordable retirement options, which is what this preferred activity will offer. The responsibility to our elderly community should not be ignored, and the basic need for efficient housing and care, is one such responsibility that needs to be met.

Provide a detailed motivation if no activity alternatives exist.

No activity alternatives exist, as the land is owned by The Home Market NPC, who intend on constructing this development, for this retirement purposes. Particularly since there is a need for this type of housing within the area.

List the positive and negative impacts that the activity alternatives will have on the environment.

Positive:

- Identification and maintenance of the Bosfontein Wetland ecosystem, in it's natural state.
- A physical barrier (of natural vegetation) between the development and the Bosfontein River provides efficient protection to this system, reducing the occurrence of pollution/contamination due to this development.
- Installation of efficient stormwater infrastructure will allow for contained stormwater flow, and minimally invasive dispersal, protecting the environment.
- On-going maintenance will be the responsibility of the development, therefore someone is accountable and responsible.
- Minimal disturbance of the identified wetland area, will allow for the re-establishment of indigenous fauna and flora, once the area is under maintenance, and alien invasive species are removed consistently.

Negative:

- The Bosfontein Wetland does not remain completely undisturbed, as the preferred alternative will require some encroachment in order to infill along the no-go zone edge, along with placement of walkways inside the wetland area.
- The disturbance of construction activity and human encroachment into the denser portion of this aquatic zone, can desensitize and disturb the remaining fauna.
- Alien invasive encroachment is likely and if not monitored and maintained will become an issue in this area.
- Possibility of pollution, loss of flora and fauna, and disturbance can be expected, if mitigation is not followed.

1.3.	Design or layout alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts
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Provide a description of the preferred design or layout alternative.

Both the Preferred Alternative 1 and Alternative 2 layout will entail the following:

- 53 Retirement Units between 104 m² and 124 m² (Sectional title units)
- A community Centre with the following components:
 - Library
 - Kitchen
 - Utility/storeroom
 - Hair salon
 - Gym
 - Nurses Station
 - Office

- Wheelchair friendly toilet facilities
- Events Hall
- Patio and braai
- An assisted living facility with the following components:
 - Six en-suite bedrooms for those requiring assistance
 - Assisted living quarters
 - Office
 - Kitchen
 - Laundry
 - Dining and lounge facility
 - Yard
- Open spaces:
 - The preservation of the seven mature oak trees that are found on the southern border
 - The northern section of the consolidated erf adjacent to the Bosfontein River, this is a buffer area.

The Preferred Alternative 1: Layout recognizes the 10m aquatic no-go buffer and the 100 year floodline, major development remains outside of these areas, with lower impact activities encroaching toward the no-go aquatic buffer zone, with possible indirect impacts on the aquatic vegetation.

Provide a description of any other design or layout alternatives investigated.

Alternative 2:

Alternative 2 Layout supports encroachment of the northern most residential units and community centre, along with the proposed pool, in the no-go aquatic zone, and encroaching into the identified floodline. This will entail high impact activities that will have a direct impact on the sensitive aquatic habitat.

No-Go Alternative:

The no-go alternative will mean that no development will take place on the site. While the landowner may be required to initiate the clearance of alien vegetation, the site will remain exposed, and the wetland habitat will be vulnerable to anthropogenic impacts of dumping and disturbance, that can lead to further pollution of the watercourse.

Sewer Infrastructure Alternative

Preferred Alternative: Bulk Sewer Pipeline

The adoption of a bulk sewer pipeline will entail the raising of the terrace, via infill, to ensure that the sewer pipeline can be laid at a sufficient depth, to accommodate gravity flow.

Disadvantages:

- Infilling upon the terrace, during construction and under heavy rain events post construction, will put the wetland habitat, downslope, at risk of sedimentation and erosional events.
- Consideration must be given to the foundation used for these houses, and related costs.
- Pipelines have the potential for breaks, and leakage.
- Breakage/leakage has the potential to contaminate the groundwater flow.

Advantages:

- The pipeline will be positioned with minimal bends and will not be under pressure, reducing the occurrence of leakages, as the line will be subjected to gravity flow.
- Minimal maintenance required.
- Should any leakage or breakage occur, the following must be taken into account:
 - The line is not under pressure and therefore will not result in erosion, or rapid dispersion.

- The pipeline is positioned below ground level, and will therefore not expose the people of the retirement village to any health risk.
- Underground pipelines are not subject to exposure and related disturbances, and are designed to last for many years.
- The Engineers have confirmed that slope stabilization infrastructure can be accommodated in the form of gabions or Loffelstein blocks.

Alternative Technology 1: Sewer Pumpstation

Due to the current ground elevation, it is difficult to accommodate a bulk water pipeline, without additional fill upon the edge of the terrace, that may risk the downslope wetland habitat without appropriate mitigation and slope stabilization.

The alternative is the proposal of a sewer pumpstation within the Wittedrift retirement development, which will assist in the transportation of the sewage created on the proposed development, to the closest wastewater treatment facility. While sewer pumpstations are equipped with emergency storage capacities within the sumps, certain considerations must be taken into account:

Disadvantages:

- Pumpstations are extremely costly and require a lot of maintenance to avoid occurrences of overflow due to backing up, or pump failure.
- Maintenance of these pump stations are the responsibility of the local municipality, who may not have the capacity or manpower to ensure sufficient maintenance.
- Due to their need for on-going maintenance, occurrences of spillage events, are highly likely, and will directly impact upon the downslope wetland habitat and will affect the surrounding community.
- Failure of pumpstation will result in:
 - Unhindered flow along the land surface, downslope toward the wetland habitat.
 - Direct contamination of the wetland habitat flora and fauna, as well as the river system, with untreated, raw sewage.
 - Foul odour.
 - Unhealthy conditions for elderly community.

Advantages:

- Engineering design will dictate the volume of the sump, therefore will be designed to accommodate the proposed capacity within the development.
- Sumps are designed to contain undesirable liquids, reducing the risk of underground seepage and contamination.

It is recommended that a bulk water pipeline be considered as the preferred design, coupled with the preferred layout, that accommodates the proposed development out of the buffer zone.

The likelihood of an incident occurring due to poor maintenance or failure of pumps, within the pumpstation, will have a direct and negative impact on the wetland habitat below. As overflow will take place upon the surface, creating an unhindered flow toward the wetland habitat and river system, and creating a foul smelling and unhealthy environment.

Infilling may be possible, if efficient slope stabilization methods are adopted into the engineering design.

Provide a motivation for the preferred design or layout alternative.

The preferred alternative 1 design/layout provides quality, affordable residential developments, uniquely designed to accommodate the requirements of the elderly community, by providing wheelchair access, assisted living units and a community centre, with essential services to meet the necessary capacity requirements.

This preferred Alternative 1 layout design also recognizes the identified aquatic no-go areas, and the 100-year floodline, therefore, compared to the Alternative 2 Layout, the development has been moved south of the wetland, removing major construction activity, ie. excavations, to establish permanent infrastructure within these area. Development within this area has been limited to slope stabilization infrastructure, walkways and benches.

The preferred Alternative 1 design/layout utilizes the full portion of exposed, disturbed and alien dominant terrestrial landcover of Erf 103 and 104, as well as a portion of Rotterdam Road. This will allow alien vegetation to be cleared and the bare space developed in such a manner that would allow the wetland habitat to be maintained, in its natural state, with minimal disturbance.

The implementation of effective stormwater management measures, and slope stabilizing infrastructure can assist in reducing runoff, and controlling the occurrence of erosional events. The plan to utilize the wetland habitat as an open space, while maintaining the natural state, will allow for the continuous maintenance/monitoring of this area, under the conditions of the EA, EMPr, and the Water Use License. It will allow the Bosfontein River Wetland habitat to flourish, following the major transformations experienced over time, due to anthropogenic activities.

Provide a detailed motivation if no design or layout alternatives exist.

Alternative 2 Layout:

The Alternative 2 Layout design accommodates the encroachment of the community centre and pool within the 10m no-go aquatic zone, and 1:100 floodline.

This was the original layout proposed for this development, prior to the identification of the wetland habitat, and no-go zone. This option will entail major earthworks, foundation establishment, and permanent infrastructure in the sensitive portion of the site. Negative impacts, according to the Freshwater Impact Assessment, will range from high to medium significance, and not all impacts can be fully mitigated, due to the positioning of infrastructure. This option will cause immediate disturbance to the edge of the wetland habitat, establishing disturbance further into the central, sensitive portions. It also places the infrastructure within the floodline, risking future damage under bad weather/storm conditions.

List the positive and negative impacts that the design alternatives will have on the environment.

The Preferred Alternative Layout:

Positive Impacts:

- Recognition and minimal disturbance to the aquatic No-Go area.
- Maintaining majority of the Bosfontein River wetland habitat.
- Realistic mitigation measures are proposed to reduce all negative impacts to low significance.

Negative Impacts:

- Disturbance to the surrounding community in the form of noise, dust, sense of place during construction.
- Possibility of indirect impacts on the aquatic wetland habitat.
- Potential loss of aquatic vegetation.

Alternative 2 Layout:

Positive Impacts:

- Maintaining the remainder of the Bosfontein River wetland habitat.
- Mitigation measures exist to attempt to reduce impacts, however as the impacts are direct upon the aquatic habitat edge, it will not be possible to reduce all negative impacts to low significance.

Negative Impacts:

- Disturbance to the surrounding community in the form of noise, dust, sense of place during construction.
- Direct impacts on the aquatic wetland habitat, ranging from high to medium significance, prior to mitigation.
- Encroachment onto the no-go buffer zone, and 100-year floodline.
- Loss of aquatic vegetation.

No-Go Alternative:

Positive Impacts:

- The Bosfontein River wetland habitat will not be impacted upon by development, as it will not take place.
- The landowner will be subject to compliance in terms of the General Duty of Care in terms of Section 28 of the NEMA, therefore the clearance of alien invasive species will be initiated within the terrestrial site extent.

Negative Impacts:

- The existing disturbance in terms of the illegal dumping will continue, unchecked.
- The disturbance through the usage of the old footpaths will continue, and possibility for the creation of new footpaths through the aquatic environment, leading to further disturbance, due to the accessibility of this area.
- No monitoring and maintenance of the wetland area, leading to further degradation, loss of wetland functionality, aquatic fauna and flora, particularly if the site is subject to exposure.
- Possibility of illegal land invasions, due to the property remaining vacant and exposed, which can result in:
 - Legal issues for the landowner.
 - The involvement of law enforcement.
 - Possibility of conflict in the community, and/or leading to crime rate increasing.
 - Present community feeling unsafe, and disturbed.

1.4.	Technology alternatives (e.g., to reduce resource demand and increase resource use efficiency) to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.
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Provide a description of the preferred technology alternative:

The Preferred Alternative: Gravity Sewer Network:

A gravity sewer network is proposed for the retirement village, to tie in to the existing 110mm Ø uPVC sewer, which extends down Protea Street.

Based on ground-based survey information, a full gravity sewer system could not be accommodated to serve the entire development based on existing ground levels. Therefore, by shaping of a portion of erf 103 back towards the proposed roadway, a gravity sewer system can be implemented to efficiently serve the development. This activity will entail the raising of the lower erven on erf 103 to enable drainage to connect to the proposed sewer between erven 103 and 104, at a 0.5% grading, to successfully connect to Protea Street. For this purpose, G7 gravel would be compacted in 150-200mm layers, and battered at a 1:2 slope to ground level (to approximately tie up with the 1:100 year floodline level at ground intersecting points).

A layout indicating the proposed sewer network for the entire development is included as Dwg 1692-R-200, of Appendix L.2. However, this will only be finalised during the detail design stage of the project. According to the Engineering report, the details for the proposed gravity sewer network, is as follows:

110mm Ø PVC u, Type 1, SANS 1601, 400 kPa pipes.

Approximate Length: +/- 525m.

Location

It is proposed that sewers for the individual erven mostly be installed in the road reserves at an average distance of 1.3m from erf boundaries (See Dwg 1692-R-200 as per Appendix L.2). Where this is not possible due to the building layouts, sewers are designed parallel to the proposed roadways. The exact positions of proposed sewers will be determined during detail design. Cognizance will need to be taken of a myriad of other services that need to be accommodated.

Provide a description of any other technology alternatives investigated.

Sewer Alternative: Sewer Pump Station

A sewer pump station was considered for the proposed development, which would allow for the transportation of the raw waste to the municipal existing services, for treatment. No details are available at present as this alternative was not explored in depth.

Consideration should be given to:

- Related costs of construction can be excessive.
- Related maintenance, which would be at the residents cost, as it would be their responsibility.
- Placement within the proposed development, no additional space has been allocated to accommodate this structure. Placement anywhere near the aquatic buffer area, would pose a risk to this habitat during operational phase, should there be any overflows or issues with the pump station.

Therefore, this is considered as an alternative for this development.

Provide a motivation for the preferred technology alternative.

Motivation for the preferred gravity sewer pipeline:

- Can be placed underground, therefore no additional surface area needs to be cleared to accommodate this structure.
- Will not be under pressure, therefore lowers the risk of breaks/spillage, as this is a gravity sewer network.
- The proposed sewer network will join the existing external sewer network, and can be accommodated, therefore no new infrastructure needs to be accommodated externally.
- The pipelines and manholes will be placed within road reserves, as advised by the Engineering report (Appendix L2), allowing for easy maintenance and accessibility, should there be breakages.
- The pipeline will be located a distance from the identified wetland area.
- Maintenance will be undertaken over longer periods of time.

Provide a detailed motivation if no alternatives exist.

The sewer pump station has been considered the ideal alternative to the preferred sewer network.

List the positive and negative impacts that the technology alternatives will have on the environment.

The Preferred Sewer Alternative:

Positive Impacts:

- Clearance and excavations will remain in planned disturbed areas.
- Maintenance required over long periods of time.
- Not under pressure, therefore lowered risk of breakage, spillage and contamination.
- Minimal impact on surface erosion if breakage occurs.
- No additional surface area required to accommodate excessive infrastructure.

- As it is below ground, the pipeline remains protected from surface exposure, and hazards.

Negative Impacts:

- Potential loss of aquatic vegetation.
- Infilling upon the edge of the terrace, and along the slope, can lead to impacts on the aquatic no go zone, leading to potential loss of vegetation, if mitigation measures and precautions are not taken
- Placement of slope stabilization infrastructure.
- Possibility of contamination to the downslope aquatic environment and the watercourse, should there be a break (low).

Proposed Sewer Alternative 2:

Positive Impacts:

- Any spillage/break will be noticeable immediately, as the structure remains above the surface, therefore can be addressed immediately.
- No additional sewer line will be required.

Negative Impacts:

- If spillage occurs, overflow will have the potential to contaminate the surface vegetation and the downslope aquatic vegetation, at a rapid rate (medium - high).
- The surrounding community may be inconvenienced by the smell if spillage occurs, this could impact on the health of the retirees, as they may have existing conditions that make them susceptible.
- Requires ongoing maintenance, if this is not followed, the chance for incidents/blockages and subsequent overflow, increases.
- There is no acknowledgment of available space to accommodate this structure.

1.5.	Operational alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.
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Provide a description of the preferred operational alternative.

Not applicable

Provide a description of any other operational alternatives investigated.

Not applicable.

Provide a motivation for the preferred operational alternative.

Not applicable.

Provide a detailed motivation if no alternatives exist.

Not applicable

List the positive and negative impacts that the operational alternatives will have on the environment.

Not applicable

1.6.	The option of not implementing the activity (the 'No-Go' Option).
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Provide an explanation as to why the 'No-Go' Option is not preferred.

The No-Go option is not preferred for the following reasons:

- The site will remain vacant and exposed allowing for the continuation of the illegal waste disposal on this site.

- There will be no accommodation created with the relevant facilities, to cater to the elderly community, for retirement purposes.
- The possibility of illegal land invasions is highly likely, due to the clearance of the site, accessibility, and the central location to the developing Wittedrift area. This can lead to further issues including:
 - Community grievances
 - The community will be inconvenienced due to the uncontrolled influx of people looking to illegally occupy this space, as well as other vacant areas around the Wittedrift area, with the hope of establishing informal housing.
 - This will attract police activity to the area.
 - This can result in an increase in criminal activities in the area, which can make the residents resentful.
 - It will affect the housing value of the surrounding community.
 - Increase in noise and disruptions within the community.
 - Services
 - The unplanned influx of people will put strain on the existing municipal services.
 - Public toilets, bathrooms, taps within the surrounding area will be utilized, and there is a possibility of vandalism to these facilities, as well as a lack of maintenance, leading to unhygienic conditions.
 - Environmental hazards
 - The site already has signs of disturbance due to illegal dumping, and pathways. This activity will further exasperate this disturbance, leading to permanent loss of any remaining indigenous vegetation, aquatic vegetation and fauna, within the wetland area.
 - Pollution of human waste and litter, as well as further land disturbance will occur.
 - The watercourse is at risk of extensive disturbance, as the occurrence of illegal land invasions will lead to pollution, possible extraction from the watercourse and possible raw sewage, etc, risking the downstream environment.
- There will be limited employment created.
- There will be limited opportunity for more residential development.
- There will be no increase in the rates base for the surrounding community, and therefore no potential growth of revenue for the local community.
- This will mean no new services/upgrades in the near future.
- No need for additional businesses, or business opportunities.
- No consistent management for the wetland area or terrestrial area, allowing for transformations by agricultural or alien invasive species

1.7.	Provide and explanation as to whether any other alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist.
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All alternatives have been discussed above.

1.8.	Provide a concluding statement indicating the preferred alternatives, including the preferred location of the activity.
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The current state of the site leaves much to be desired. Erf 103 and 104 remain undeveloped and exposed within an urban edge, indicating that development has been earmarked in the surrounding area, whether or not the site is developed, which can lead to further impacts upon this exposed site.

The site has undergone extensive transformation. Historically, transformation has extended to agricultural impacts, resulting in the loss of majority of the indigenous terrestrial vegetation, and the success of alien vegetation, affecting the edge of the wetland habitat. Overtime, disturbance has taken the form of stormwater infrastructure and manholes, one such structure is situated close to the riparian area. Existing footpaths can be located diagonally through erf 104 and is scattered with solid domestic waste and garden refuse, which is illegal, as the site has not been designated for waste disposal. There is also a trail leading from the gravel road to the active channel of the river in the

northeast of the study site. This trail has denser vegetation cover and large volumes of domestic waste as well as human waste, scattered in the area.

It has been determined that the Preferred Alternative 1: layout will result in minimal encroachment onto the no-go aquatic zone, related to the raising of a small portion of erf 103, and the placement of slope stabilization structures, as compared to the intensive construction related to the Alternative 2: Layout, which would entail the construction of the community pool and extending the development footprint into the sensitive portion of the site.

Developing this site, as proposed, under the guidance of an EA and its associated documentation and requirements, as well as implementing the appropriate mitigation measures and stormwater infrastructure, will allow for:

- the removal of waste,
- the restriction of uncontrolled access into the wetland habitat,
- ceasing of illegal dumping activity,
- allowance for the wetland habitat and ecosystem to flourish with some maintenance and protection,
- as well as providing multiple benefits to the surrounding community and proposed residents, such as:
 - Quality residential retirement housing and assisted care facilities for the residents.
 - Community centre to cater to the residents
 - A good quality of life for the elderly community.
 - Increase in property demands for the local municipality.
 - Increase in surrounding housing costs.

Leaving this site undeveloped, will result in further degradation due to anthropogenic disturbance through waste disposal, possible land invasions, and downstream impact on the Bitou River system. While development is a form of disturbance, if implemented under environmental guidance, as is the purpose of an effective environmental assessment, can lead to sustainable development, allowing for the support of a seemingly forgotten wetland habitat, while meeting social demands for housing and development.

2. "No-Go" areas

Explain what "no-go" area(s) have been identified during identification of the alternatives and provide the co-ordinates of the "no-go" area(s).

An aquatic no-go buffer area was identified to the south of the identified 100 year floodline, along the 10m contour, (see Figure 7) located along the northern portion of the site. This highlights the extent of the aquatic/wetland habitat that requires maintenance. As can be seen in the figure below, the proposed Preferred Alternative 1 Layout remains outside of the No-Go buffer.



Figure 7: Proposed Preferred Alternative 1 Layout with No-Go buffer.

Table 5: Coordinates from western boundary to eastern boundary

	X-Coordinates	Y-Coordinates
Aquatic No-Go Zone located along Erf 103	23,33248587	-34,00883173
	23,33252939	-34,00879585
	23,33259571	-34,00875703
	23,3327814	-34,00868445
	23,33289079	-34,00865992
	23,332983	-34,00864437
	23,33310069	-34,00861229
	23,33318656	-34,00858096
	23,33320745	-34,00856784
	23,33323071	-34,00856037
	23,33328631	-34,00853088
	23,33334352	-34,0085184
	23,3333626	-34,00850744
	23,33338721	-34,00849126
	23,33343849	-34,00844013
	23,3334515	-34,00842767
	23,3334587	-34,00841105
	23,33347061	-34,00837925
	23,3334801	-34,00836837
	23,33349108	-34,00836709
23,33350249	-34,00836303	
23,33354668	-34,00833506	
23,33356231	-34,00831765	
23,33357294	-34,00830581	
23,33358158	-34,00828297	
23,33358872	-34,008261	
23,33363162	-34,00821593	

	23,33365349	-34,00820452
	23,33366589	-34,0081962
	23,33368023	-34,0081738
	23,33369174	-34,0081636
	23,3337156	-34,0081536
	23,33374642	-34,00815015
	23,33377325	-34,0081337
	23,33378676	-34,00811694
	23,33379907	-34,0080796
	23,33379962	-34,00805732
	23,33379447	-34,00803953
	23,33376671	-34,00799975
	23,33376987	-34,00796599
	23,33405115	-34,00737457

3. Methodology to determine the significance ratings of the potential environmental impacts and risks associated with the alternatives.

Describe the methodology to be used in determining and ranking the nature, significance, consequences, extent, duration of the potential environmental impacts and risks associated with the proposed activity or development and alternatives, the degree to which the impact or risk can be reversed and the degree to which the impact and risk may cause irreplaceable loss of resources.

The assessment criteria utilized in this environmental impact assessment is based on, and adapted from, the *Guideline on Impact Significance, Integrated Environmental Management Information Series 5* (Department of Environmental Affairs and Tourism (DEAT), 2002) and the *Guideline 5: Assessment of Alternatives and Impacts in Support of the Environmental Impact Assessment Regulations* (DEAT, 2006).

Determination of Extent (Scale):

Site specific	On site or within 100 m of the site boundary.
Local	The impacted area includes the whole or a measurable portion of the site, but could affect the area surrounding the development, including the neighbouring properties and wider municipal area.
Regional	The impact would affect the broader region (e.g. neighbouring towns) beyond the boundaries of the adjacent properties.
National	The impact would affect the whole country (if applicable).

Determination of Duration:

Temporary	The impact will be limited to the construction phase.
Short term	The impact will either disappear with mitigation or will be mitigated through a natural process in a period shorter than 2 years.
Medium term	The impact will last up to the end of the construction phase, where after it will be entirely negated.
Long term	The impact will continue for the entire operational lifetime of the development but will be mitigated by direct human action or by natural processes thereafter.
Permanent	This is the only class of impact that will be non-transitory. Such impacts are regarded to be irreversible, irrespective of what mitigation is applied.

Determination of Probability:

Improbable	The possibility of the impact occurring is very low, due either to the circumstances, design or experience.
Probable	There is a possibility that the impact will occur to the extent that provisions must therefore be made.
Highly probable	It is most likely that the impacts will occur at some stage of the development. Plans must be drawn up to mitigate the activity before the activity commences.
Definite	The impact will take place regardless of any prevention plans.

Determination of Significance (without mitigation):

No significance	The impact is not substantial and does not require any mitigation action.
Low	The impact is of little importance but may require limited mitigation.
Medium	The impact is of sufficient importance and is therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels.
Medium-High	The impact is of high importance and is therefore considered to have a negative impact. Mitigation is required to manage the negative impacts to acceptable levels.
High	The impact is of great importance. Failure to mitigate, with the objective of reducing the impact to acceptable levels, could render the entire development option or entire project proposal unacceptable. Mitigation is therefore essential.
Very High	The impact is critical. Mitigation measures cannot reduce the impact to acceptable levels. As such the impact renders the proposal unacceptable.

Determination of Significance (with mitigation):

No significance	The impact will be mitigated to the point where it is regarded to be insubstantial.
Low	The impact will be mitigated to the point where it is of limited importance.
Medium	Notwithstanding the successful implementation of the mitigation measures, the impact will remain of significance. However, taken within the overall context of the project, such a persistent impact does not constitute a fatal flaw.
High	Mitigation of the impact is not possible on a cost-effective basis. The impact continues to be of great importance, and, taken within the overall context of the project, is considered to be a fatal flaw in the project proposal.

Determination of Reversibility:

Completely Reversible	The impact is reversible with implementation of minor mitigation measures
Partly Reversible	The impact is partly reversible but more intense mitigation measures
Barely Reversible	The impact is unlikely to be reversed even with intense mitigation measures
Irreversible	The impact is irreversible and no mitigation measures exist

Determination of Degree to which an Impact can be Mitigated:

Can be mitigated	The impact is reversible with implementation of minor mitigation measures
Can be partly mitigated	The impact is partly reversible but more intense mitigation measures
Can be barely mitigated	The impact is unlikely to be reversed even with intense mitigation measures
Not able to mitigate	The impact is irreversible and no mitigation measures exist

Determination of Loss of Resources:

No loss of resource	The impact will not result in the loss of any resources
Marginal loss of resource	The impact will result in marginal loss of resources
Significant loss of resources	The impact will result in significant loss of resources
Complete loss of resources	The impact will result in a complete loss of all resources

Determination of Degree to which an Impact can be avoided:

High	The impact is completely avoidable
Medium	The impact is avoidable with moderate mitigation
Low	The impact is difficult to avoid and will require significant mitigation
Unavoidable	The impact cannot be avoided

Determination of Degree to which an Impact can be managed:

High	The impact is completely manageable
Medium	The impact is manageable with moderate mitigation
Low	The impact is difficult to manage and will require significant mitigation
Unmanageable	The impact cannot be managed

Determination of Cumulative Impact:

Negligible	The impact would result in negligible to no cumulative effects
Low	The impact would result in insignificant cumulative effects
Medium	The impact would result in minor cumulative effects
High	The impact would result in significant cumulative effects

4. Assessment of each impact and risk identified for each alternative

Note: The following table serves as a guide for summarising each alternative. The table should be repeated for each alternative to ensure a comparative assessment. The EAP may decide to include this section as Appendix J to this BAR.

	PREFERRED ALTERNATIVE 1 (LAYOUT)	ALTERNATIVE 2 (LAYOUT)	NO-GO ALTERNATIVE (LAYOUT)
PLANNING, DESIGN AND DEVELOPMENT PHASE			
Potential impact and risk:	<p>Aquatic Impacts: Disturbance/Loss of Aquatic Vegetation and Habitat</p> <p>The project requires the removal of mainly Kikuyu grass (<i>Pennisetum clandestinum</i>) and few indigenous species. The development will not occur within the riparian zone, but it will encroach onto it and therefore construction phase impacts are possible. Potential loss or disturbance of riparian zone vegetation during construction, from machinery, vehicles and workers. The movement of topsoil and incorrectly placed stockpiles could bury aquatic habitat. This impact could be enhanced through stockpiling close to or on the slope of the terrace which will make the stockpiles unstable. Due to construction, alien invasive species may encroach further into any disturbed areas and outcompete indigenous vegetation thereby reducing aquatic biodiversity.</p>		
Nature of impact:	Negative	Negative	Negative
Extent and duration of impact:	Local and permanent	Local and permanent	Local and short term
Consequence of impact or risk:	<ul style="list-style-type: none"> • Loss of habitat • Loss of aquatic organisms • Alien vegetation encroachment 	<ul style="list-style-type: none"> • Loss of habitat • Loss of aquatic organisms • Alien vegetation encroachment 	N/A
Probability of occurrence:	Highly Likely	Definite	Improbable
Degree to which the impact may cause irreplaceable loss of resources:	Marginal	Significant	Minor
Degree to which the impact can be reversed:	Irreversible	Irreversible	Irreversible
Indirect impacts:			
Cumulative impact prior to mitigation:	<ul style="list-style-type: none"> • Regression of the wetland habitat, due to loss of viable vegetation, allowing for the success of alien vegetation. 	<ul style="list-style-type: none"> • Occurrences of erosion. • Sedimentation. • Regression of the wetland habitat, due to loss of viable vegetation, 	N/A

	<ul style="list-style-type: none"> Reduction in wetland ecosystem function. 	<p>allowing for the success of alien vegetation.</p> <ul style="list-style-type: none"> Reduction in wetland ecosystem function. 	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium	Medium	Low
Degree to which the impact can be avoided:	Medium	Low	N/A
Degree to which the impact can be managed:	Medium	Low	High
Degree to which the impact can be mitigated:	Low	Medium	Medium
Proposed mitigation:	<ul style="list-style-type: none"> Establishment of a buffer area /and a no-go area around the wetland where no construction activities are allowed. Erect signage indicating the buffer area, and restricting access to any unauthorized personnel. Establish key personnel to clear alien vegetation in buffer zone, with a alien vegetation management plan, identifying alien and indigenous species. Construction personnel, equipment and materials must be limited to the minimal practical working area. Construction workers and vehicles must be prevented from entering the watercourse. Silt fence must be erected between the construction activities and the watercourse to prevent sediments-laden storm water from entering the watercourse. Berms or similar measures must be implemented to slow down the speed of storm water flows into the watercourse. 	<ul style="list-style-type: none"> An alien invasive management plan must be compiled and implemented to assist the property owner with the clearance of the vegetation to ensure that clearing is undertaken in a responsible manner and to ensure that the site is properly rehabilitated. 	

	<ul style="list-style-type: none"> All equipment and materials storage areas must (if practical, reasonable and feasible) be located at a minimum distance of 50m from the watercourse. The appointed ECO must be consulted in this regard. Soil contaminated by spilled oil/ fuel/ lubricant must be excavated and disposed of in the hazardous waste bin. 		
Residual impacts:			<ul style="list-style-type: none"> Possible erosion due to clearance of vegetation.
Cumulative impacts post mitigation:	Low	Low- Medium	Low
Significance rating of impact post mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	Medium	Low
Potential impact and risk:	<p>Aquatic Impact: Sedimentation and Erosion</p> <p>Vegetation clearing and exposure of bare soils adjacent to the wetland habitat during construction will decrease the soil binding capacity and cohesion of the upslope soils and thus increase the risk of erosion and sedimentation downslope. The majority of the site has a gentle slope. However, the terrace slope at the wetland habitat is steeper which will increase velocity of runoff into the wetland. Coupled with poor stormwater management can lead to:</p> <ul style="list-style-type: none"> Erosion and burying of aquatic habitat depending on the sediment load of runoff. The wetland ceasing to function. Soil erosion from confined flows. The formation of rills and gullies from increased concentrated runoff can also be expected. The volume and velocity of runoff increases the particle carrying capacity of the water flowing over the surface. 		
Nature of Impact:	Negative	Negative	Negative
Extent and duration of impact:	Local and short-term	Local and long-term	Local and short-term
Consequence of impact or risk:	<ul style="list-style-type: none"> Erosion and sedimentation. Potential loss of aquatic vegetation and organisms. 	<ul style="list-style-type: none"> Erosion and sedimentation. Potential loss of aquatic vegetation and organisms. 	N/A
Probability of occurrence:	Highly Likely	Highly Likely	Improbable
Degree to which the impact may cause	Marginal	Significant	Minor

irreplaceable loss of resources:			
Degree to which the impact can be reversed:	Partly	Partly	Partly
Indirect impacts:			
Cumulative impact prior to mitigation:	<ul style="list-style-type: none"> • Occurrences of erosion. • Sedimentation. • Reduction in wetland ecosystem function. 	<ul style="list-style-type: none"> • Occurrences of erosion. • Sedimentation. • Reduction in wetland ecosystem function. 	<ul style="list-style-type: none"> • Site remains exposed to disturbance from anthropogenic activities.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium	Medium	Low
Degree to which the impact can be avoided:	Low	Low	High
Degree to which the impact can be managed:	Medium	Low	High
Degree to which the impact can be mitigated:	Partly	Partly	Partly
Proposed mitigation:	<p>General</p> <ul style="list-style-type: none"> • Establishment of a buffer area /and a no-go area around the wetland where no construction activities are allowed. • Erect signage indicating the buffer area, and restricting access to any unauthorized personnel. • Establish key personnel to clear alien vegetation in buffer zone, with a alien vegetation management plan, identifying alien and indigenous species. • Construction personnel, equipment and materials must be limited to the minimal practical working area. • Stormwater control measures must be implemented for the duration of the project. • Construction workers and vehicles must be prevented from entering the watercourse. 		

	<ul style="list-style-type: none"> • Silt fence must be erected between the construction activities and the watercourse to prevent sediments-laden storm water from entering the watercourse. • Berms or similar measures must be implemented to slow down the speed of storm water flows into the watercourse. • All equipment and materials storage areas must (if practical, reasonable and feasible) be located at a minimum distance of 50m from the watercourse. The appointed ECO must be consulted in this regard. • Soil contaminated by spilled oil/ fuel/ lubricant must be excavated and disposed of in the hazardous waste bin. • Avoid stockpiling too close to the edge of the terrace. • Ensure stockpiles are bunded, utilize sandbags, and utilize nets for coverage. 		
Residual impacts:			
Cumulative impacts post mitigation:	Low	Low - Medium	Low
Significance rating of impact post mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	Medium	Low
Potential impact and risk:	<p>Aquatic impact: Water Pollution</p> <p>The potential for pollutants such as hydrocarbons (petrol/diesel and oils/grease/lubricants) and raw cement, have the potential to contaminate the wetland. These pollutants have the potential to alter the water quality parameters such as turbidity, nutrient levels, chemical oxygen demand and pH. These alterations can impact the species composition of the systems, especially species sensitive to minor changes in these parameters. Sudden drastic changes in water quality can also have chronic effects on aquatic biota in general and result in localised extinctions. Pollutants have the potential to contaminate the wetland and watercourse system through the surface runoff or by being directly dumped. Activities that can contribute to these pollutants include:</p> <ul style="list-style-type: none"> - Poor vehicle or machinery maintenance, leading to leakage on surfaces. - Servicing vehicles and machinery on bare soil, or where surface runoff is directed into the wetland/watercourse. - Spillage from poor handling, or storing. - Incorrect positioning and maintenance of the portable chemical toilets and use of the surrounding environment as ablution facilities. 		
Nature of Impact:	Negative	Negative	Negative

Extent and duration of impact:	Local – Medium	Local - Medium	Local - short-term
Consequence of impact or risk:	<ul style="list-style-type: none"> Contamination of soil/water by pollutants. 		
Probability of occurrence:	Definite	Highly Likely	Probable
Degree to which the impact may cause irreplaceable loss of resources:	No	No	No
Degree to which the impact can be reversed:	Partly	Partly	Partly
Indirect impacts:	<ul style="list-style-type: none"> Compromising growth and success of indigenous vegetation. Ecosystem functioning compromised. Aquatic biota affected. 	<ul style="list-style-type: none"> Compromising growth and success of indigenous vegetation. Ecosystem functioning compromised. Aquatic biota affected. 	N/A
Cumulative impact prior to mitigation:	<ul style="list-style-type: none"> Cumulative impact of this development and future development within the catchment will likely cause drastic resource loss, habitat degradation, pollution, flow modification, etc. Unless sustainable planning and appropriate stormwater measures are implemented. 		N/A
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium	Medium	Low
Degree to which the impact can be avoided:	Medium	Medium	High
Degree to which the impact can be managed:	High	High	High
Degree to which the impact can be mitigated:	High	High	Partly
Proposed mitigation:	General		

- Establishment of a buffer area /and a no-go area around the wetland where no construction activities are allowed.
- Erect signage indicating the buffer area, and restricting access to any unauthorized personnel.
- Construction personnel, equipment and materials must be limited to the minimal practical working area.
- Stormwater control measures must be implemented for the duration of the project.
- Construction workers and vehicles must be prevented from entering the watercourse.
- Silt fence must be erected between the construction activities and the watercourse to prevent sediments-laden storm water from entering the watercourse.
- Berms or similar measures must be implemented to slow down the speed of storm water flows into the watercourse.
- All equipment and materials storage areas must (if practical, reasonable and feasible) be located at a minimum distance of 50m from the watercourse. The appointed ECO must be consulted in this regard.
- Utilize impermeable surfaces, where drainage is not directed to the wetland/watercourse system, for machinery/vehicle maintenance. It is preferable to relocate this off site.
- Designate an area for storage of materials, particularly fuels/hazardous waste, demarcate, erect signage, and bund any container containing these materials. Ensure there is a cover.
- Ensure that hazardous waste bins are weighted down, have weighted covers, are labelled appropriately, and are cleaned by a reputable waste disposal company. Obtain a disposal/cleaning slip for this waste, to file in the Environmental File.
- Soil contaminated by spilled oil/ fuel/ lubricant must be excavated and disposed of in the hazardous waste bin.
- Cement mixing must be conducted on impermeable surfaces. Utilize shutter boards/tarp, that are appropriately banded.
- Avoid stockpiling too close to the edge of the terrace.

	<ul style="list-style-type: none"> Ensure stockpiles are banded, utilize sandbags, and utilize nets for coverage. <p>Waste Disposal</p> <ul style="list-style-type: none"> Pollution can take the form of solid/liquid waste material generated during construction activity, therefore all waste must be identified, and disposed of appropriately. Waste must be separated. Separate bins must be established on site and labelled appropriately. None should be allowed to fill to overflow, therefore disposal should be consistent, at a registered site, and a disposal slip must be obtained unless municipal skips are being utilized for removal. Disposal slips must be filed in the Environmental File, as proof of legal disposal. No littering should be tolerated on site, particularly due to the downslope, sensitive wetland habitat. 		
Residual impacts:			
Cumulative impacts post mitigation:	Low	Low	Low
Significance rating of impact post mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	Low	Low
Potential impact and risk:	<p>Aquatic impact: Flow Modification</p> <p>Land clearing and earth works adjacent to the wetland will reduce infiltration rates and increase the surface runoff volume and velocity. Such changes in surface roughness and runoff rates may lead to some rill and gully erosion. Altered water inputs from upslope disturbances as well as modified water distribution and retention patterns will ultimately affect the hydrological integrity of water resources.</p>		
Nature of Impact:	Negative	Negative	Negative
Extent and duration of impact:	Local – Medium	Local – Medium	Local – short-term
Consequence of impact or risk:	<ul style="list-style-type: none"> Reduction in infiltration rates. Increase in surface runoff volume and velocity. Potential rill/gully erosion. Altered water inputs from upslope disturbances. 		<ul style="list-style-type: none"> Land clearance of alien vegetation, can lead to erosion.

	<ul style="list-style-type: none"> Modification of water distribution and retention patterns will ultimately affect the hydrological integrity of water resources 		
Probability of occurrence:	Highly likely	Highly Likely	Improbable
Degree to which the impact may cause irreplaceable loss of resources:	Marginal	Marginal	Marginal
Degree to which the impact can be reversed:	Partly	Partly	Partly
Indirect impacts:			
Cumulative impact prior to mitigation:	<ul style="list-style-type: none"> Cumulative impact of this development and future development within the catchment will likely cause drastic resource loss, habitat degradation, pollution, flow modification, etc. Unless sustainable planning and appropriate stormwater measures are implemented. 		
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium	Medium	Low
Degree to which the impact can be avoided:	Medium	Low	High
Degree to which the impact can be managed:	Medium	Low	High
Degree to which the impact can be mitigated:	Partly	Partly	Partly
Proposed mitigation:	<ul style="list-style-type: none"> Establishment of a buffer area and a no-go area around the wetland where no construction activities are allowed. Construction personnel, equipment and materials must be limited to the minimal practical working area. Stormwater control measures must be implemented for the duration of the project. 		

	<ul style="list-style-type: none"> • Silt fence must be erected between the construction activities and the watercourse to prevent sediments-laden storm water from entering the watercourse. • Berms or similar measures must be implemented to slow down the speed of storm water flows into the watercourse. • All equipment and materials storage areas must (if practical, reasonable and feasible) be located at a minimum distance of 50m from the watercourse. The appointed ECO must be consulted in this regard. • Utilize impermeable surfaces, where drainage is not directed to the wetland/watercourse system, for machinery/vehicle maintenance. It is preferable to relocate this off site. • Designate an area for storage of materials, particularly fuels/hazardous waste, demarcate, erect signage, and bund any container containing these materials. Ensure there is a cover. • Ensure that hazardous waste bins are weighted down, have weighted covers, are labelled appropriately, and are cleaned by a reputable waste disposal company. Obtain a disposal/cleaning slip for this waste, to file in the Environmental File. • Soil contaminated by spilled oil/ fuel/ lubricant must be excavated and disposed of in the hazardous waste bin. • Cement mixing must be conducted on impermeable surfaces. Utilize shutter boards/tarp, that are appropriately bundled. • Avoid stockpiling too close to the edge of the terrace. • Ensure stockpiles are bundled, utilize sandbags. 		
Residual impacts:			
Cumulative impacts post mitigation:	Low	Low	Low
Significance rating of impact post mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	Low	Low

Potential impact and risk:	SOCIAL IMPACT: SENSE OF PLACE (NOISE, DUST AND LIFESTYLE)		
Nature of Impact:	Negative.	Negative.	Negative.
Extent and duration of impact:	Local and temporary.	Local and temporary.	Local and temporary.
Consequence of impact or risk:	General construction nuisances i.e. dust, noise, odour, etc. will impact on the sense of place, although mainly temporary in nature.	General construction nuisances i.e. dust, noise, odour, etc. will impact on the sense of place, although mainly temporary in nature.	Minor alterations, as no development will take place.
Probability of occurrence:	Definite.	Definite.	Likely
Degree to which the impact may cause irreplaceable loss of resources:	No loss of resource.	No loss of resource.	No loss of resource.
Degree to which the impact can be reversed:	Partly reversible.	Partly reversible.	Reversible.
Indirect impacts:	None.	None.	None.
Cumulative impact prior to mitigation:	Negligible.	Negligible.	Negligible.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low-Medium	Medium	Low
Degree to which the impact can be avoided:	Low-Medium.	Medium.	High
Degree to which the impact can be managed:	Medium.	Medium.	High
Degree to which the impact can be mitigated:	Can be Partly mitigated.	Can be Partly mitigated.	Can be Partly mitigated.
Proposed mitigation:	<u>Dust Mitigation:</u> <ul style="list-style-type: none"> Land clearing and earthmoving activities should not be undertaken during strong winds, where possible. 	<u>Dust Mitigation:</u> <ul style="list-style-type: none"> Land clearing and earthmoving activities should not be undertaken during strong winds, where possible. 	N/A

	<ul style="list-style-type: none"> • Cleared areas should be provided with a suitable cover as soon as possible, and not left exposed for extended periods of time. • Stockpiles of topsoil, spoil material and other material that may generate dust must be protected from wind erosion (e.g. covered with netting, tarpaulin or other appropriate measures. Note that topsoil should not be covered with tarpaulin as this may kill the seedbank). • The location of stockpiles must take into account, the prevailing wind direction, and should be situated so as to have the least possible dust impact to surrounding residents, road-users and other land-users. • Speed limits must be enforced in all areas, including public roads and private property to limit the levels of dust pollution. • The speed limit should be set at 20-40km/h. • Dust must be suppressed on access roads and the construction site during dry periods by the regular application of non-potable water or a biodegradable soil stabilisation agent. Water used for this purpose must be used in quantities that will not result in the generation of excessive run off. • Dust suppression measures such as the wetting down of sand heaps as well as 	<ul style="list-style-type: none"> • Cleared areas should be provided with a suitable cover as soon as possible, and not left exposed for extended periods of time. • Stockpiles of topsoil, spoil material and other material that may generate dust must be protected from wind erosion (e.g. covered with netting, tarpaulin or other appropriate measures. Note that topsoil should not be covered with tarpaulin as this may kill the seedbank). • The location of stockpiles must take into account, the prevailing wind direction, and should be situated so as to have the least possible dust impact to surrounding residents, road-users and other land-users. • Speed limits must be enforced in all areas, including public roads and private property to limit the levels of dust pollution. • The speed limit should be set at 20-40km/h. • Dust must be suppressed on access roads and the construction site during dry periods by the regular application of non-potable water or a biodegradable soil stabilisation agent. Water used for this purpose must be used in quantities that will not result in the generation of excessive run off. • Dust suppression measures such as the wetting down of sand heaps as well as 	
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	<p>exposed areas around the site must be implemented especially on windy days.</p> <ul style="list-style-type: none"> • The use of straw worked into the sandy areas may also help and the ECO must advise when this is necessary. • If dust appears to be a continuous problem the option of using shade cloth to cover open areas may be necessary or the erecting of shade netting above the fenced off are may need to be explored. • Work on site must be well-planned and should proceed efficiently so as to minimise the handling of dust generating material. • Material loads should be properly covered during transportation. • Dust levels specified in the National Dust Control Regulations (GN 827 of November 2013) may not be exceeded. i.e. dust fall in residential areas may not exceed 600mg/m²/day, measured using reference method ASTM D1739; • A Complaints Register must be available at the site office for inspection by the ECO of dust complaints that may have been received. • The appointed Environmental Control Officer (ECO) must undertake a site inspection once per week, for the 	<p>exposed areas around the site must be implemented especially on windy days.</p> <ul style="list-style-type: none"> • The use of straw worked into the sandy areas may also help and the ECO must advise when this is necessary. • If dust appears to be a continuous problem the option of using shade cloth to cover open areas may be necessary or the erecting of shade netting above the fenced off are may need to be explored. • Work on site must be well-planned and should proceed efficiently so as to minimise the handling of dust generating material. • Material loads should be properly covered during transportation. • Dust levels specified in the National Dust Control Regulations (GN 827 of November 2013) may not be exceeded. i.e. dust fall in residential areas may not exceed 600mg/m²/day, measured using reference method ASTM D1739; • A Complaints Register must be available at the site office for inspection by the ECO of dust complaints that may have been received. • The appointed Environmental Control Officer (ECO) must undertake a site inspection once per week, for the 	
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	<p>duration of the construction phase, and to produce a short monthly ECO monitoring audit report, auditing on the compliance of the property developer with the conditions of the Environmental Authorisation and the approved EMP.</p> <p><u>Noise Mitigation:</u></p> <ul style="list-style-type: none"> • A complaints register will be opened. • Excavations and earth-moving activities must be restricted to normal construction working hours (7:30 – 17:30) as far as possible. • Work on site must be well-planned and should proceed efficiently so as to limit the duration of the disturbance. • Vehicles and equipment must be kept in good working condition. If deemed necessary, machinery and equipment should be fitted with mufflers/ exhaust silencers. No unnecessary disturbances should be allowed to emanate from the construction site. • Due to the proximity of the proposed development site to residents, noise levels must be kept to a minimum at all times. If excessive noise is expected near the residential erven bordering the site they must be informed in advance of when the high noise levels will occur and for how long they will occur. 	<p>duration of the construction phase, and to produce a short monthly ECO monitoring audit report, auditing on the compliance of the property developer with the conditions of the Environmental Authorisation and the approved EMP.</p> <p><u>Noise Mitigation:</u></p> <ul style="list-style-type: none"> • A complaints register will be opened. • Excavations and earth-moving activities must be restricted to normal construction working hours (7:30 – 17:30) as far as possible. • Work on site must be well-planned and should proceed efficiently so as to limit the duration of the disturbance. • Vehicles and equipment must be kept in good working condition. If deemed necessary, machinery and equipment should be fitted with mufflers/ exhaust silencers. No unnecessary disturbances should be allowed to emanate from the construction site. • Due to the proximity of the proposed development site to residents, noise levels must be kept to a minimum at all times. If excessive noise is expected near the residential erven bordering the site they must be informed in advance of when the high noise levels will occur and for how long they will occur. 	
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	<ul style="list-style-type: none"> Workers should be educated on how to control noise-generating activities that have the potential to become disturbances, particularly over an extended period of time. Noise levels must comply with the relevant health & safety regulations and SANS codes and should be monitored by the Health & Safety Officer as necessary and appropriate. Affected parties must be informed of the excessive noise factors. The noise management and monitoring measures prescribed in the EMPr must be adhered to. Consideration must be given to noise mufflers, etc, for noise suppression on construction vehicles, 	<ul style="list-style-type: none"> Workers should be educated on how to control noise-generating activities that have the potential to become disturbances, particularly over an extended period of time. Noise levels must comply with the relevant health & safety regulations and SANS codes and should be monitored by the Health & Safety Officer as necessary and appropriate. Affected parties must be informed of the excessive noise factors. The noise management and monitoring measures prescribed in the EMPr must be adhered to. Consideration must be given to noise mufflers, etc, for noise suppression on construction vehicles, 	
Residual impacts:	None.	None.	None.
Cumulative impacts post mitigation:	Low.	Low.	Low.
Significance rating of impact post mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium.	Medium.	Medium.
Potential impact and risk:	SOCIAL IMPACT: TRAFFIC		
Nature of Impact:	Negative.	Negative.	N/A
Extent and duration of impact:	Local and medium term.	Local and medium term.	N/A
Consequence of impact or risk:	<ul style="list-style-type: none"> Minor disruptions to traffic to the surrounding areas will occur during 	<ul style="list-style-type: none"> Minor disruptions to traffic to the surrounding areas will occur during 	N/A

	<p>the construction stage, as construction vehicles will be utilising the areas to access the sites.</p> <ul style="list-style-type: none"> • Ongoing construction vehicle movement, with loads, may cause damage to the existing road surfaces. • Accidents may occur due to impatient drivers. 	<p>the construction stage, as construction vehicles will be utilising the areas to access the sites.</p> <ul style="list-style-type: none"> • Construction vehicle movement, with loads, may cause damage to the existing road surfaces. • Accidents may occur due to impatient drivers. 	
Probability of occurrence:	Definite.	Definite.	N/A
Degree to which the impact may cause irreplaceable loss of resources:	No loss of resource.	No loss of resource.	N/A
Degree to which the impact can be reversed:	Barely	Barely	N/A
Indirect impacts:	<ul style="list-style-type: none"> • Accidents. • Congestion and delays. 	<ul style="list-style-type: none"> • Accidents. • Congestion and delay 	N/A
Cumulative impact prior to mitigation:	<ul style="list-style-type: none"> • Unhappy community members. • Potential damage to road surfaces. 	<ul style="list-style-type: none"> • Unhappy community members. • Potential damage to road surfaces. 	N/A
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium	Medium	N/A
Degree to which the impact can be avoided:	Low	Low	N/A
Degree to which the impact can be managed:	Medium	Medium	N/A

Degree to which the impact can be mitigated:	Can be mitigated	Can be mitigated	N/A
Proposed mitigation:	<ul style="list-style-type: none"> • All construction vehicles need to adhere to traffic laws. The speed of construction vehicles and other heavy vehicles must be strictly controlled to avoid dangerous conditions for other road users. As far as possible care should be taken to ensure that the local traffic flow pattern is not significantly disrupted. • All vehicle operators need to be educated in terms of “best-practice” operations to minimise unnecessary traffic congestion or dangers. Construction vehicles should therefore, not unnecessarily obstruct the access point or traffic lanes used to access the site. Construction vehicles also need to consider the load carrying capacity of road surfaces and adhere to all other prescriptive regulations regarding the use of public roads by construction vehicles. • Adequate signage, that is both informative and cautionary to passing traffic (motorists and pedestrians), warning them of the construction activities must be suitably located in the area where the construction is occurring and must be easily visible by all road users. Signage needs to be 	<ul style="list-style-type: none"> • All construction vehicles need to adhere to traffic laws. The speed of construction vehicles and other heavy vehicles must be strictly controlled to avoid dangerous conditions for other road users. As far as possible care should be taken to ensure that the local traffic flow pattern is not significantly disrupted. • All vehicle operators need to be educated in terms of “best-practice” operations to minimise unnecessary traffic congestion or dangers. Construction vehicles should therefore, not unnecessarily obstruct the access point or traffic lanes used to access the site. Construction vehicles also need to consider the load carrying capacity of road surfaces and adhere to all other prescriptive regulations regarding the use of public roads by construction vehicles. • Adequate signage, that is both informative and cautionary to passing traffic (motorists and pedestrians), warning them of the construction activities must be suitably located in the area where the construction is occurring and must be easily visible by all road users. Signage needs to be 	Not applicable.

	<p>clearly visible and needs to include, among others, the following:</p> <ul style="list-style-type: none"> ○ Identifying working area as a construction site; ○ Cautioning against relevant construction activities; ○ Prohibiting access to construction site; ○ Clearly specifying possible detour routes and/or delay periods; ○ Possible indications of time frames attached to the construction activities, and; ○ Listings of which contractors and engineers are working on the site. <ul style="list-style-type: none"> ● If needed, appropriate traffic management measures and/ or points men (traffic marshals) should be utilized to assist vehicles entering/ exiting the site, particularly where vehicles must cross the path of oncoming traffic. ● Speed of construction vehicles and other heavy vehicles must be strictly controlled to avoid dangerous conditions for other road users. ● The Contractor must ensure that any large or abnormal loads (including hazardous materials) that must be transported to/ from the site are routed appropriately, and that appropriate safety precautions are taken. ● Truck drivers, transporting construction material or vehicles must be briefed on 	<p>clearly visible and needs to include, among others, the following:</p> <ul style="list-style-type: none"> ○ Identifying working area as a construction site; ○ Cautioning against relevant construction activities; ○ Prohibiting access to construction site; ○ Clearly specifying possible detour routes and/or delay periods; ○ Possible indications of time frames attached to the construction activities, and; ○ Listings of which contractors and engineers are working on the site. <ul style="list-style-type: none"> ● If needed, appropriate traffic management measures and/ or points men (traffic marshals) should be utilized to assist vehicles entering/ exiting the site, particularly where vehicles must cross the path of oncoming traffic. ● Speed of construction vehicles and other heavy vehicles must be strictly controlled to avoid dangerous conditions for other road users. ● The Contractor must ensure that any large or abnormal loads (including hazardous materials) that must be transported to/ from the site are routed appropriately, and that appropriate safety precautions are taken. ● Truck drivers, transporting construction material or vehicles must be briefed on 	
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	<p>the appropriate route, and speed limits etc. The driver should be experienced at transporting large loads.</p> <ul style="list-style-type: none"> Ensure any damage done by vehicle movement is identified, and reinstated as soon as possible. 	<p>the appropriate route, and speed limits etc. The driver should be experienced at transporting large loads.</p> <ul style="list-style-type: none"> Ensure any damage done by vehicle movement is identified, and reinstated as soon as possible. 	
Residual impacts:	None.	None.	N/A
Cumulative impacts post mitigation:	Negligible.	Negligible.	N/A
Significance rating of impact post mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low.	Low.	N/A
Potential impact and risk:	<p>LOSS OF TERRESTRIAL VEGETATION / HABITAT & EROSION</p> <p>While the 2018 Vegetation Map indicates the site as being situated within the Garden Route Shale Fynbos vegetation unit, with a threat status of Endangered (2016), ground proofing has established that the site bears few indigenous species. The site is mainly covered in grass species such as kikuyu (<i>Pennisetum Clandestinum</i>) and <i>Eragrostis curvula</i>. The seven oak trees (<i>Quercus</i> sp.) and few young Milkwood trees will be retained.</p>		
Nature of Impact:	Negative.	Negative.	Negative.
Extent and duration of impact:	Site Specific and Long Term.	Site Specific and Long Term.	Site Specific and short-term.
Consequence of impact or risk:	<ul style="list-style-type: none"> The loss of vegetation during construction as a result of the planned clearance of vegetation for construction. It has been established that very little indigenous vegetation is still remaining on site. 	<ul style="list-style-type: none"> The loss of vegetation during construction as a result of the planned clearance of vegetation for construction. It has been established that very little indigenous vegetation is still remaining on site. 	Clearance of alien vegetation, which currently dominates the terrestrial portion of this site.
Probability of occurrence:	Definite	Definite	Definite
Degree to which the impact may cause	Significant loss of resources.	Significant loss of resources.	Marginal loss of resources.

irreplaceable loss of resources:			
Degree to which the impact can be reversed:	Irreversible.	Irreversible.	Barely reversible.
Indirect impacts:	<ul style="list-style-type: none"> Erosion and sedimentation of exposed soils. Alien species infestation. 	<ul style="list-style-type: none"> Erosion and sedimentation of exposed soils. Alien species infestation. 	<ul style="list-style-type: none"> Erosion due to exposed soils.
Cumulative impact prior to mitigation:	Medium-High	Medium - High	Medium-High.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium	Medium	Low - medium
Degree to which the impact can be avoided:	Unavoidable	Unavoidable	Low
Degree to which the impact can be managed:	Medium	Medium	Low-Medium
Degree to which the impact can be mitigated:	Can be barely mitigated.	Can be barely mitigated.	Can be barely mitigated.
Proposed mitigation:	<ul style="list-style-type: none"> Provide provisions in the detailed design of the layout to accommodate protected trees. Barricade protected trees during construction. Ensure the open space is kept clear of alien plant species through the adoption of an Alien Management plan. Access into open space/no-go buffer zone for alien vegetation clearance should only be allocated to key personnel, who should be informed 	<ul style="list-style-type: none"> Provide provisions in the detailed design of the layout to accommodate protected trees. Barricade protected trees during construction. Ensure the open space is kept clear of alien plant species through the adoption of an Alien Management plan. Access into open space/no-go buffer zone for alien vegetation clearance should only be allocated to key personnel, who should be informed 	<ul style="list-style-type: none"> An appropriate alien vegetation management plan should be utilized for clearance purposes, implemented in a responsible manner and maintained.

	<p>about the alien species, encountered, and how to remove them.</p> <ul style="list-style-type: none"> • Ensure no-go area buffer has been established. • Trees located in areas where sidewalks, open areas or gardens are proposed are to be barricaded and not cleared. • Indigenous species should be used to revegetate bare areas, and should be incorporated in planned landscaping. • Alien vegetation should be removed, and disposed off site, at a registered waste facility, disposal slips must be obtained for waste disposal. • Only the minimum area required to accommodate the construction must be cleared of vegetation. • Vegetation outside of the demarcated construction footprint may not be cleared. • Vehicles may not be driven through undeveloped vegetation outside of the demarcated working area. • After construction, the site must be rehabilitated in accordance with the recommendations in the EMPr. 	<p>about the alien species, encountered, and how to remove them.</p> <ul style="list-style-type: none"> • Ensure no-go area buffer has been established. • Trees located in areas where sidewalks, open areas or gardens are proposed are to be barricaded and not cleared. • Indigenous species should be used to revegetate bare areas, and should be incorporated in planned landscaping. • Alien vegetation should be removed, and disposed off site, at a registered waste facility, disposal slips must be obtained for waste disposal. • Only the minimum area required to accommodate the construction must be cleared of vegetation. • Vegetation outside of the demarcated construction footprint may not be cleared. • Vehicles may not be driven through undeveloped vegetation outside of the demarcated working area. • After construction, the site must be rehabilitated in accordance with the recommendations in the EMPr. 	
Residual impacts:	<ul style="list-style-type: none"> • Possibility of erosion. 	<ul style="list-style-type: none"> • Possibility of erosion 	None
Cumulative impacts post mitigation:	Low - Medium	Low - Medium	Medium.
Significance rating of impact post mitigation	Medium	Medium	Medium

(e.g. Low, Medium, Medium-High, High, or Very-High)			
Potential impact and risk:	SOCIAL IMPACT: VISUAL		
Nature of Impact:	Negative	Negative	N/A
Extent and duration of impact:	Local and temporary.	Local and temporary.	N/A
Consequence of impact or risk:	<ul style="list-style-type: none"> • Change of visual aesthetics, due to construction disturbance. • Exposure of soils, earth works, construction machinery movement. • Disturbance to surrounding community. 	<ul style="list-style-type: none"> • Change of visual aesthetics, due to construction disturbance. • Exposure of soils, earth works, construction machinery movement. • Disturbance to surrounding community. 	Minimal alteration to the site, in order to maintain the current status quo.
Probability of occurrence:	Definite	Definite	Highly probable
Degree to which the impact may cause irreplaceable loss of resources:	No loss of resource.	No loss of resource.	No loss of resource.
Degree to which the impact can be reversed:	Irreversible	Irreversible	Partly reversible.
Indirect impacts:	None	None	None
Cumulative impact prior to mitigation:	None	None	None
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium	Medium	Low
Degree to which the impact can be avoided:	Unavoidable	Unavoidable	Low

Degree to which the impact can be managed:	Medium.	Medium.	Medium.
Degree to which the impact can be mitigated:	Can be partly mitigated	Can be partly mitigated	Can be partly mitigated
Proposed mitigation:	<ul style="list-style-type: none"> • The site camp, toilets, storage facilities, stockpiles, waste bins, and any other temporary structures on site should be located in such a way that they will present as little visual impact to surrounding residents and road users as possible. • Utilize shade cloth, or other suitable material, along the fence perimeter of the site camp. • Work on site must be well-planned and well-managed so that work proceeds quickly and efficiently, thus minimizing the disturbance time. • Special attention should be given to the screening of highly reflective material. • Use of lighting (if required) should take into account surrounding residents and land users and should present little or no nuisance. Downward facing, spill-off type lighting is recommended. • Construction vehicles must enter and leave the site during working hours. 	<ul style="list-style-type: none"> • The site camp, toilets, storage facilities, stockpiles, waste bins, and any other temporary structures on site should be located in such a way that they will present as little visual impact to surrounding residents and road users as possible. • Utilize shade cloth, or other suitable material, along the fence perimeter of the site camp. • Work on site must be well-planned and well-managed so that work proceeds quickly and efficiently, thus minimizing the disturbance time. • Special attention should be given to the screening of highly reflective material. • Use of lighting (if required) should take into account surrounding residents and land users and should present little or no nuisance. Downward facing, spill-off type lighting is recommended. • Construction vehicles must enter and leave the site during working hours. 	No mitigation measures are enforceable as the development process for the no-go option would not be guided by the environmental assessment process.
Residual impacts:	None.	None.	None.
Cumulative impacts post mitigation:	Low-Medium.	Low-Medium.	Low-Medium.

Significance rating of impact post mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low-Medium.	Low-Medium.	Low-Medium.
Potential impact and risk:	SOCIO-ECONOMIC IMPACTS – CREATION OF MULTIPLE JOB OPPORTUNITIES & CAPITAL EXPENDITURE Creation of temporary job opportunities for skilled and unskilled labour, with potential for skills transfer, for members of the local community. Goods, materials and services, should be sourced from local businesses.		
Nature of Impact:	Positive	Positive	Positive
Extent and duration of impact:	Local and medium - term.	Local and medium - term.	Local and short-term
Consequence of impact or risk:	<ul style="list-style-type: none"> • Positive. • Labourers (skilled and unskilled), will be able to earn a living, and improve/build their skills. • Improved quality of life for these labourers, by establishing an income. 		<ul style="list-style-type: none"> • Positive but short term, and limited to fewer labour. • But does provide an opportunity for the landowner to hire a few local labour, to commence with clearance of alien vegetation and maintenance of site.
Probability of occurrence:	Definite	Definite	Highly probable
Degree to which the impact may cause irreplaceable loss of resources:	No loss of a resource.	No loss of a resource.	No loss of a resource.
Degree to which the impact can be reversed:	Irreversible	Irreversible	Irreversible
Indirect impacts:	<ul style="list-style-type: none"> • Income generated by labourer will benefit their families/households, can improve quality of their lives. • There may be opportunities to transfer skills from more experienced workers to less experienced workers. • The local community/shops will benefit, as labour purchases goods through income generated. 		<ul style="list-style-type: none"> • Transfer of skills, and education of labour on alien species common to the area, and alien control measures.

			<ul style="list-style-type: none"> The local community/shops will benefit, as labour purchases goods through income generated (minor). Income generated by labourer will benefit their families/households, can improve quality of their lives (minor).
Cumulative impact prior to mitigation:	Medium	Medium	Medium
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium - High	Medium - High	Medium
Degree to which the impact can be avoided:	Unavoidable	Unavoidable	Unavoidable
Degree to which the impact can be managed:	Not applicable	Not applicable	Not applicable
Degree to which the impact can be mitigated:	No mitigation proposed, as it is a positive impact.	No mitigation proposed, as it is a positive impact.	No mitigation proposed, as it is a positive impact.
Proposed mitigation:	<ul style="list-style-type: none"> Positive, therefore no mitigation necessary. It should be noted that this impact will benefit the local community, and address the issue of unemployment within the Western Cape, and country of South Africa. Local sourcing of suppliers, for the relevant construction material, is advised. 		
Residual impacts:	<ul style="list-style-type: none"> Identification of able and employable labour, with a skillset, from the local community, who can be offered jobs for future developments. 		
Cumulative impacts post mitigation:	Not applicable	Not applicable	Not applicable

Significance rating of impact post mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium (+)	Medium (+)	Medium (+)
OPERATIONAL PHASE:			
Potential impact and risk:	<p>AQUATIC IMPACTS: The wetland will be incorporated into the development as part of the open space. This will be done by the development of minimally invasive walkways and the removal of alien Invasive species. Effective management of the open space will have a minimal effect on the condition of the wetland. Development proposed as per Preferred Alternative 1, will allow for the open space/wetland habitat to be maintained, as development remains as far removed as possible, from the aquatic no-go zone, compared to the proposed development of Alternative 2, where the development directly impacts upon the no-go zone.</p>		
Nature of Impact:	Negative	Negative	Negative
Extent and duration of impact:	Local and permanent	Local and permanent	Local and short-term
Consequence of impact or risk:	<ul style="list-style-type: none"> • Persistence of alien species. • Hardened surfaces decrease natural infiltration, and increase and concentrate flows into the wetland, runoff can be contaminated with waste material (litter, soil particles, cigarettes, etc.) affecting wetland functions and systems. • Increase slope, will result in increasing velocity of already concentrated runoff from the development. 		<ul style="list-style-type: none"> • Persistence of alien species. • Exposure of the wetland habitat to trespassing, as accessibility will remain from Rotterdam Road.
Probability of occurrence:	Probable – Highly Likely	Probable - Definite	Improbable
Degree to which the impact may cause irreplaceable loss of resources:	Marginal loss of resources	Significant loss of resources	Marginal loss of resources

Degree to which the impact can be reversed:	Partly – barely reversible	Partly – irreversible	Partly to barely
Indirect impacts:	<ul style="list-style-type: none"> Erosion and incision/scouring in the system, that compromises remaining vegetated habitat, and freshwater habitat. Flora and fauna disturbance. 	<ul style="list-style-type: none"> Erosion and incision/scouring in the system, that compromises remaining vegetated habitat, and freshwater habitat. Flora and fauna disturbance. Particularly related to flow modification, due to hardened surfaces. 	<ul style="list-style-type: none"> Exposed areas are prone to further disturbance, dumping, and anthropogenic activities.
Cumulative impact prior to mitigation:	<ul style="list-style-type: none"> Impact upon downstream system. Alteration of ecology. 	<ul style="list-style-type: none"> Impact upon downstream system. Alteration of ecology. 	<ul style="list-style-type: none"> Little to no limitation of access to the wetland area, therefore no protection to the wetland area. Alteration of ecology. Impact upon downstream system.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium	Medium - High	Low
Degree to which the impact can be avoided:	Medium	Low - unavoidable	Medium
Degree to which the impact can be managed:	Medium	Low	Medium
Degree to which the impact can be mitigated:	Partly	Partly - Barely	Partly
Proposed mitigation:	<ul style="list-style-type: none"> Implement appropriate stormwater management measures, infrastructure and plans. 		Not applicable

	<ul style="list-style-type: none"> • Monitor stormwater infrastructure to ensure the infrastructure and measures are functioning. Consider further improvement, if failure, or if it is found to be inadequate. • Implement gabions at the base of the slope, to provide slope stability/support, as well as attenuation of surface runoff. • Identify the buffer zone. Erect signage, with the relevant information: <ul style="list-style-type: none"> • Brief description of wetland habitat. • Prohibited activities. • Identify alien invasive species to be aware of, with photos. • Rehabilitate the buffer area with indigenous vegetation. • Maintenance of the wetland habitat and buffer area must be implemented for it to remain viable. 		
Residual impacts:	None	<ul style="list-style-type: none"> • Potential loss of vegetation and wetland function. 	None
Cumulative impacts post mitigation:	Low	Medium	Low
Significance rating of impact post mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	Medium	Low
Potential impact and risk:	<p>SOCIO-ECONOMIC IMPACTS: LOCAL ECONOMIC REVENUE</p> <p>The rates base will increase as the construction progresses and houses transferred to the new owners. In addition, local businesses will benefit from the growth in population, which will generate more income, and possibly the establishment of new businesses.</p>		
Nature of Impact:	Positive.	Positive.	Not applicable, as no development means there will be no improvement to the local rates base.
Extent and duration of impact:	Regional and permanent.	Regional and permanent.	
Consequence of impact or risk:	<ul style="list-style-type: none"> • Increased revenue to the Bitou Municipality. • Increase in local business revenue. 	<ul style="list-style-type: none"> • Increased revenue to the Bitou Municipality. • Increase in local business revenue. 	

Probability of occurrence:	Definite	Definite	
Degree to which the impact may cause irreplaceable loss of resources:	No loss of a resources	No loss of a resources	
Degree to which the impact can be reversed:	Irreversible	Irreversible	
Indirect impacts:	<ul style="list-style-type: none"> Better service delivery within the municipal area as a result of the increased revenue. Employment opportunities may increase outside of the development as businesses grow. 	<ul style="list-style-type: none"> Better service delivery within the municipal area as a result of the increased revenue. Employment opportunities may increase outside of the development as businesses grow. 	
Cumulative impact prior to mitigation:	<ul style="list-style-type: none"> High. Increased income to the municipality leads to improved service delivery, making Bitou Municipality, and especially in the Wittedrift area, attractive to prospective buyers. Increase in potential business opportunities in the Wittedrift area, or close proximity to. 	<ul style="list-style-type: none"> High. Increased income to the municipality leads to improved service delivery, making Bitou Municipality, and especially in the Wittedrift area, attractive to prospective buyers. Increase in potential business opportunities in the Wittedrift area, or close proximity to. 	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium - high	Medium - high	
Degree to which the impact can be avoided:	<ul style="list-style-type: none"> Not applicable. 		

Degree to which the impact can be managed:	<ul style="list-style-type: none"> It remains a highly significant, positive impact, that will benefit the local economy, promoting development and growth for both the Wittedrift area, and the local municipality. 		
Degree to which the impact can be mitigated:			
Proposed mitigation:			
Residual impacts:			
Cumulative impacts post mitigation:			
Significance rating of impact post mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)			
Potential impact and risk:	<p>SOCIO-ECONOMIC IMPACTS: JOB CREATION</p> <p>Multiple jobs will be created, for a long-term period, in the form of gardeners, nursing staff, administrative staff to assist with the functioning of the community centre, domestic workers, security, etc. It is highly likely that these employees will be sourced from the local community, which will contribute to a better quality of life for themselves, and their families and skills transference, over relatively longer periods of time.</p>		
Nature of Impact:	Positive	Positive	Positive
Extent and duration of impact:	Regional and Long term	Regional and Long term	Local and temporary
Consequence of impact or risk:	<ul style="list-style-type: none"> Long-term employment available to the local community. Employees earn salaries that will contribute to their quality of life. Multiple opportunities will be created inside and outside of the development. 		<ul style="list-style-type: none"> Temporary employment, in order to establish the alien invasive management plan. Limited number of employees.
Probability of occurrence:	Definite	Definite	Probable
Degree to which the impact may cause irreplaceable loss of resources:	No loss of resources	No loss of resources	No loss of resources

Degree to which the impact can be reversed:	Irreversible	Irreversible	Reversible
Indirect impacts:	<ul style="list-style-type: none"> Local employees will purchase from local stores/businesses, stimulating the local economy to grow and thrive. 	<ul style="list-style-type: none"> Local employees will purchase from local stores/businesses, stimulating the local economy to grow and thrive. 	<ul style="list-style-type: none"> Skills transference, into alien invasive management in the local community. Employees can support local stores/business, however much fewer and temporarily, as this maintenance may not be consistent.
Cumulative impact prior to mitigation:	<ul style="list-style-type: none"> Employees will earn a living to improve the lives, health and safety of their family members and households. Employees are able to afford to educate their children. Employees are able to provide food and shelter for themselves and their families. Employment created with the development will have a positive influence on members in the community previously unemployed. 	<ul style="list-style-type: none"> Employees will earn a living to improve the lives, health and safety of their family members and households. Employees are able to afford to educate their children. Employees are able to provide food and shelter for themselves and their families. Employment created with the development will have a positive influence on members in the community previously unemployed. 	Not applicable
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High (+)	High (+)	

Degree to which the impact can be avoided:	Not applicable, it remains a positive impact, that will benefit the development, the surrounding community and the local economy.	Not applicable, it remains a positive impact, that will benefit the development, the surrounding community and the local economy.	
Degree to which the impact can be managed:			
Degree to which the impact can be mitigated:			
Proposed mitigation:			
Residual impacts:			
Cumulative impacts post mitigation:			
Significance rating of impact post mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)			
Potential impact and risk:			
	SENSE OF PLACE (NOISE AND LIFESTYLE)		
Nature of Impact:	Negative.	Negative.	Not applicable, as the development will not take place, the site will remain as per the status quo.
Extent and duration of impact:	Local and Permanent.	Local and Permanent.	
Consequence of impact or risk:	<ul style="list-style-type: none"> • Change of site from undeveloped to developed. • Increased lighting. • Increased residents within the local community, therefore increased movement. 		
Probability of occurrence:	Definite.	Definite.	
Degree to which the impact may cause irreplaceable loss of resources:	No Loss of Resources.	No Loss of Resources.	
Degree to which the impact can be reversed:	Irreversible	Irreversible	
Indirect impacts:	<ul style="list-style-type: none"> • Lighting nuisances • Community frustration, this is both positive and negative. 	<ul style="list-style-type: none"> • Lighting nuisances • Community frustration, this is both positive and negative. 	

	<ul style="list-style-type: none"> (+), as the site was previously being used to illegally dump solid waste and human waste, this will now stop. (-), as the increase in people, noise from a larger community, vehicles, lights, nuisances, from an area that use to be undeveloped, may disturb the site. 	<ul style="list-style-type: none"> (+), as the site was previously being used to illegally dump solid waste and human waste, this will now stop. (-), as the increase in people, noise from a larger community, vehicles, lights, nuisances, from an area that use to be undeveloped, may disturb the site. 	
Cumulative impact prior to mitigation:	<ul style="list-style-type: none"> (+), Bitou local municipality will need to establish an acceptable disposal system/disposal site, that can service the Wittedrift area, and discourage further illegal dumping. 	<ul style="list-style-type: none"> (+), Bitou local municipality will need to establish an acceptable disposal system/disposal site, that can service the Wittedrift area, and discourage further illegal dumping. 	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	Low	
Degree to which the impact can be avoided:	Unavoidable	Unavoidable	
Degree to which the impact can be managed:	Medium	Medium	
Degree to which the impact can be mitigated:	Can be partly mitigated.	Can be partly mitigated.	
Proposed mitigation:	<ul style="list-style-type: none"> Appropriate signage to indicate speed limits, and establishment of speed bumps, to reduce noise from traffic. 	<ul style="list-style-type: none"> Appropriate signage to indicate speed limits, and establishment of speed bumps, to reduce noise from traffic. 	

	<ul style="list-style-type: none"> Road network should be considered in municipalities future planning, for expansions, etc. The development is predicted to have minimal nuisances in terms of sense of place, as the development will match the surrounding residential land uses. 	<ul style="list-style-type: none"> Road network should be considered in municipalities future planning, for expansions, etc. The development is predicted to have minimal nuisances in terms of sense of place, as the development will match the surrounding residential land uses. 	
Residual impacts:	<ul style="list-style-type: none"> Busier roads. Possible noise activity from the movement of additional vehicles, allowance of families (with possibly younger children), to reside in the development, and visitors, etc. Increase in residential community. 	<ul style="list-style-type: none"> Busier roads. Possible noise activity from the movement of additional vehicles, allowance of families (with possibly younger children), to reside in the development, and visitors, etc. Increase in residential community. 	
Cumulative impacts post mitigation:	Low	Low	
Significance rating of impact post mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low	Low	
Potential impact and risk:	<p>SOCIO-ECONOMIC IMPACTS: PROVISION OF HOUSING OPPORTUNITIES</p> <p>The proposed development will increase the amount of housing within the urban edge of the Bitou Municipality, and address the backlog identified in the Bitou Local Municipality draft SDF, 2019.</p>		
Nature of Impact:	Positive	Positive	Not applicable, as there would be no housing development.
Extent and duration of impact:	Local and permanent.	Local and permanent.	
Consequence of impact or risk:	<ul style="list-style-type: none"> Utilization of space within the urban edge. 		

	<ul style="list-style-type: none"> Meeting the demand for housing, within the Bitou Municipality, and future planning for Wittedrift. 	
Probability of occurrence:	Highly probable.	Highly probable.
Degree to which the impact may cause irreplaceable loss of resources:	No significant loss of a resource.	No significant loss of a resource.
Degree to which the impact can be reversed:	Irreversible	Irreversible
Indirect impacts:	<ul style="list-style-type: none"> Attracting prospective buyers, looking for retirement residential housing. 	
Cumulative impact prior to mitigation:	<ul style="list-style-type: none"> High The housing market will be expanded, which would in turn motivate spending within the municipality, due to increased residents. 	<ul style="list-style-type: none"> High The housing market will be expanded, which would in turn motivate spending within the municipality, due to increased residents.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High, no mitigation required.	High, no mitigation required.
Degree to which the impact can be avoided:	Unavoidable	Unavoidable
Degree to which the impact can be managed:	Unmanageable.	Unmanageable.
Degree to which the impact can be mitigated:	N/A – This is a positive impact proposed to be enhanced.	
Proposed mitigation:	<ul style="list-style-type: none"> Positive. No mitigation required. 	

	<ul style="list-style-type: none"> The proposed development represents an enhancement measure on its own. 		
Residual impacts:	<ul style="list-style-type: none"> Meeting the need for housing within the municipality. Promoting the Wittedrift area, for residential development. Promoting economical growth and interest for the municipality. 		
Cumulative impacts post mitigation:	High.	High.	
Significance rating of impact post mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	High (+)	High (+)	
Potential impact and risk:	<p>VISUAL IMPACT: Change from undeveloped, to developed site. Preferred alternative 1 will entail housing on the edge of the terrace, allowing for minimal impacts within the open space/wetland habitat at the base, while Alternative 2 will entail the residential properties of the same density, with major disturbance and impact upon the open space/wetland area. The wetland area is located downslope of the existing residential developments in the surrounding area.</p>		
Nature of Impact:	Negative.	Negative.	Negative
Extent and duration of impact:	Local and permanent.	Local and permanent.	Local and long-term
Consequence of impact or risk:	Change in sense of place.	Change in sense of place.	<ul style="list-style-type: none"> Continuation of illegal dumping. Continuation of pollution and degrading of environment.
Probability of occurrence:	Definite	Improbable.	Definite
Degree to which the impact may cause irreplaceable loss of resources:	No irreplaceable loss of resources.	No irreplaceable loss of resources.	Possible irreplaceable loss of resources.

Degree to which the impact can be reversed:	Irreversible	Irreversible	Reversible
Indirect impacts:	Change in sense of place of the surrounding area.	Change in sense of place of the surrounding area.	Impact on the Bosfontein river and wetland environment, and ecosystem.
Cumulative impact prior to mitigation:	<ul style="list-style-type: none"> • Low. • The current character of the site will change, but as it links with the existing residential character of the surrounding area. 	<ul style="list-style-type: none"> • Low. • The current character of the site will change, but as it links with the existing residential character of the surrounding area. • Major earthworks within a portion of natural aquatic habitat. 	<ul style="list-style-type: none"> • Medium
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium.	Medium-High.	Medium - High
Degree to which the impact can be avoided:	Unavoidable	Unavoidable	Avoidable
Degree to which the impact can be managed:	Low.	Low.	Medium
Degree to which the impact can be mitigated:	Can be barely mitigated.	Can be partly mitigated.	Can be partly mitigated.
Proposed mitigation:	<ul style="list-style-type: none"> • Consideration should be given to design of the units so as to create the least visual disturbance in the surrounding area. • Colours should be kept natural. • Materials should be sourced locally. • Promote the establishment of indigenous trees and vegetation. • If screening is required to establish privacy, only indigenous trees and vegetation should be allowed. • Maintain oak and milkwood trees identified on site. 		<ul style="list-style-type: none"> • The landowner is responsible for clearing the site of any alien invasive or waste, that has resulted in land degradation. • Consideration should be given to the fencing of the site, in order to prohibit

			access, particularly onto Erf 103.
Residual impacts:	<ul style="list-style-type: none"> Alteration to sense of place. Residential character will match that of the surrounding area. 	<ul style="list-style-type: none"> Alteration to sense of place. Residential character will match that of the surrounding area. 	<ul style="list-style-type: none"> Re-establishment of alien invasive species.
Cumulative impacts post mitigation:	Medium.	Medium-High.	Medium
Significance rating of impact post mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low-Medium.	Medium.	
Potential impact and risk:	TRAFFIC IMPACT: There will be an increase in traffic as a result of the development which may lead to traffic congestion.		
Nature of Impact:	Negative.	Negative.	No impact, as no development will take place,.
Extent and duration of impact:	Local and long-term	Local and long-term	
Consequence of impact or risk:	<ul style="list-style-type: none"> Increased traffic congestion. 	<ul style="list-style-type: none"> Increased traffic congestion. 	
Probability of occurrence:	Probable	Probable.	
Degree to which the impact may cause irreplaceable loss of resources:	No irreplaceable loss of resources.	No irreplaceable loss of resources.	
Degree to which the impact can be reversed:	Partly Reversible.	Partly Reversible.	
Indirect impacts:	<ul style="list-style-type: none"> Increased Carbon Emissions. Probability of road accidents and noise. 	<ul style="list-style-type: none"> Increased Carbon Emissions. Probability of road accidents and noise. 	
Cumulative impact prior to mitigation:	<ul style="list-style-type: none"> Medium. 	<ul style="list-style-type: none"> Medium. 	

	<ul style="list-style-type: none"> Increase in the number of vehicles may lead traffic congestion at some intersections. 	<ul style="list-style-type: none"> Increase in the number of vehicles may lead traffic congestion at some intersections. 	
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Medium - High	Medium - High	
Degree to which the impact can be avoided:	Low	Low	
Degree to which the impact can be managed:	Low	Low	
Degree to which the impact can be mitigated:	Can be Partly mitigated.	Can be Partly mitigated.	
Proposed mitigation:	<ul style="list-style-type: none"> Ensure that sufficient signage and road markings are incorporated into the internal road network. Additional pedestrian crossings and speed bumps should be established. Consideration should be given to establishing a bus stop for the local transport service provider, outside the development to encourage the use of public transport. 	<ul style="list-style-type: none"> Ensure that sufficient signage and road markings are incorporated into the internal road network. Additional pedestrian crossings and speed bumps should be established. Consideration should be given to establishing a bus stop for the local transport service provider, outside the development to encourage the use of public transport. 	
Residual impacts:	<ul style="list-style-type: none"> Increase carbon emissions, affecting air quality (not predicted to be extensive). 	<ul style="list-style-type: none"> Increase carbon emissions, affecting air quality (not predicted to be extensive). 	
Cumulative impacts post mitigation:	Low	Low	

Significance rating of impact post mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Low-Medium.	Low-Medium.	
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SECTION I: FINDINGS, IMPACT MANAGEMENT AND MITIGATION MEASURES

1.	Provide a summary of the findings and impact management measures identified by all Specialist and an indication of how these findings and recommendations have influenced the proposed development.
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FRESHWATER IMPACT ASSESSMENT

Summary of Findings:

Present state of site:

Erf 103 and 104 are presently located on top of a fluvial terrace and covered in terrestrial vegetation with negligible natural habitat remaining. The area has been subject to various impacts such as from agriculture, forestry and urban development. The top of the fluvial terrace is covered in Kikuyu grass (*Pennisetum Clandestinum*) and *Eragrostis curvula*. The site has existing footpaths, with scattered illegally dumped domestic waste, building rubble and garden waste. However, most of the disturbance is within the terrestrial area, while the aquatic habitat on site is less impacted and remains viable.

Aquatic habitat:

It was determined that the aquatic habitat that will be impacted by the development is the Bosfontein River wetland north of the development. This wetland is fed by the perennial river channel that runs through it. Under natural conditions the channel was likely shallow and situated within more extensive wetland habitat. However, due to its current incised nature, the active channel and remnant wetland vegetation is predominantly disconnected.

The wetland habitat is degraded due to various impacts within the catchment such as from agriculture, forestry and urban development. The wetland received a 'D' PES score, indicating a Poor system. However, this is an indication of the health of the whole reach of natural wetland. The fragment of wetland habitat remaining is in better health with dense vegetation cover and no signs of erosion. The wetland's functional importance is highlighted in its ability to attenuate floods, trap sediment and control erosion. It is recommended that the wetland be maintained in its current state.

Recommended alternative:

Alternative 2 Layout is the original layout where the development encroaches significantly into aquatic habitat on the eastern side of the development. Preferred Alternative 1 is the amended layout that considers the 10m aquatic buffer. Although the infrastructure still slightly encroaches into the buffer, it is unlikely to cause high impacts to the aquatic habitat. It is however still recommended that infrastructure be set back to be completely outside the buffer.

Other relevant legislation:

The proposed development activities will trigger a water use licence in terms of Section 21 (c) and (i) of the National Water Act (Act 36 of 1998). It is recommended that a water use application for this proposed development be submitted to the Breede Gouritz Catchment Management Agency (BGCMA).

Establishment of No-Go buffer zone

The Bosfontien River flows in an easterly direction across the northern portion of the site before joining the Bietou River system. Significant degradation has resulted in only fragmented wetland habitat remaining on the valley floor. There has been a disconnect between the incised channel and lateral wetland habitat resulting in an altered ecological state and decreased ecological functioning of the remaining pockets. The degraded habitat within the rest of the valley is presently more characteristic of a lowland river than its estimated historic wetland state. It contains an incised channel with a sandy substrate and the banks are vegetated with invasive tree and grass species. The small fragments of remaining wetland habitat are the only indicator of the former wetland type of the entire valley floor and are most similar to the natural reference condition of the area.

One such pocket of remaining wetland habitat is situated within the northern section of the site proposed for development. It lies within the low lying relic channel, a floodplain meander cut-off, at the base of the floodplain terrace. The linear, bow-shaped depression is intermittently inundated by

periodic overbank flooding from the channel but also receives surface runoff from the terrace and increased water inputs from the nearby stormwater outlet. This wetland area is likely to capture sediments and nutrients from upstream during peak flows, but it mainly serves as a buffer between the urban area and the channel. Due to the importance of the downstream Bietou and Keurbooms river and wetland systems it is essential that functions of this habitat are not further compromised.

Therefore, an 10m no-go aquatic buffer has been established, this area and stringent mitigation must be adopted in order to maintain the present state of the wetland and avoid any further degradation of the system.

Summary of Impacts:

Table 6: Summary of impacts and the related significance

CONSTRUCTION PHASE IMPACTS				
IMPACT	PREFERRED ALTERNATIVE 1: LAYOUT		ALTERNATIVE 2: LAYOUT	
	IMPACT SIGNIFICANCE BEFORE MITIGATION	IMPACT SIGNIFICANCE AFTER MITIGATION	IMPACT SIGNIFICANCE AFTER MITIGATION	IMPACT SIGNIFICANCE AFTER MITIGATION
DISTURBANCE/LOSS OF AQUATIC VEGETATION AND HABITAT	Medium (-)	Low (-)	Medium (-)	Medium (-)
SEDIMENTATION AND EROSION	Medium (-)	Low (-)	Medium (-)	Medium (-)
WATER POLLUTION	Medium (-)	Low (-)	Medium (-)	Low (-)
FLOW MODIFICATION	Medium (-)	Low (-)	Medium (-)	Low (-)
OPERATIONAL PHASE IMPACTS				
IMPACT	PREFERRED ALTERNATIVE 1: LAYOUT		ALTERNATIVE 2: LAYOUT	
	IMPACT SIGNIFICANCE BEFORE MITIGATION	IMPACT SIGNIFICANCE AFTER MITIGATION	IMPACT SIGNIFICANCE AFTER MITIGATION	IMPACT SIGNIFICANCE AFTER MITIGATION
DISTURBANCE/LOSS OF AQUATIC VEGETATION AND HABITAT	Medium (-)	Low (-)	Medium (-)	Medium (-)
SEDIMENTATION AND EROSION	Medium (-)	Low (-)	Medium (-)	Medium (-)
WATER POLLUTION	Medium (-)	Low (-)	Medium (-)	Low (-)
FLOW MODIFICATION	Medium (-)	Low (-)	High (-)	Medium (-)

Summary of Recommended Management Measures:

General:

- Identification and maintenance of the no-go aquatic buffer zone.
- Integration of mitigation measures during financial planning.
- No deterioration to the water resource should take place.

- Standard management measures should be implemented to ensure that any on-going activities do not result in a decline in water resource quality.
- Monitoring for non-compliance must be done on a daily basis by the contractors.
- Photographic records of all incidents and non-compliances must be retained.
- Monitoring should especially focus on preventing water pollution, avoiding wetland habitat, and introducing runoff from the development responsibly into the receiving environment.

Construction Phase:

- Implementation of the stormwater management plan, and associated infrastructure.
- Soft infrastructure must be considered where practical.
- All erosion protection measures (e.g. Reno-mattresses) must be established to reflect the natural slope of the surface and located at the natural ground level.
- Erosion control measures including silt fences, low soil berms and/or shutter boards must be put in place around the stockpiles to limit sediment runoff from stockpiles.
- Stockpiles must not be located close to the aquatic habitat, and should not be placed in vegetated areas that will not be cleared.
- Implement regular monitoring.

Post-construction/ Rehabilitation Phase

- Rehabilitation Plan must be followed.
- Indigenous vegetation established.
- Alien invasive plant species must be removed.
- A monitoring programme shall be in place, not only to ensure compliance with the EMPr throughout the construction phase, but also to monitor any post-construction environmental issues and impacts such as increased surface runoff. The monitoring should be regular and additional visits must be taken when there is potential risk to the aquatic habitat.
- The solid domestic waste must be removed and disposed of offsite.
- Erosion control measures and structures must be implemented and maintained.

Operational Phase

- Maintain aquatic buffer area.
- A formal stormwater management plan must be undertaken and should incorporate appropriate ecological input and be developed based on Sustainable Drainage Systems (SUDS).
- Appropriate wastewater infrastructure must be designed to prevent any such water from entering the surrounding environment.
- Utilize water tanks for the capture of rainwater runoff from roofs for watering gardens.
- The local authority should provide suitable waste disposal facilities for the recycling and disposal of waste.
- The community should be educated on the sensitivities of the open area.

HERITAGE IMPACT ASSESSMENT

Summary of Findings:

Cultural significance can be defined as: "*aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value of significance*". The national estate includes, inter alia, places, buildings, and structures of cultural significance, historical settlements and townscapes, and landscapes and natural features of cultural significance (NHRA).

Both Erven 103 and 104 Wittedrift have no particular aesthetic or historical significance as they are currently undeveloped and vacant. None of the surrounding structures illustrated above are of architectural significance and must be considered ungradable in terms of HWC's criteria. It would therefore appear that there are no heritage resources on the site or in its setting.

2. List the impact management measures that were identified by all Specialist that will be included in the EMPr

FRESHWATER IMPACT ASSESSMENT

General Impact Management Measures:

- Consideration must be given to mitigation measures during financial planning of the construction phase of the development, to ensure sufficient funds are available.
- Any potential risks must be managed and mitigated to ensure that no deterioration to the water resource takes place.
- Standard management measures should be implemented to ensure that any on-going activities do not result in a decline in water resource quality.
- The monitoring of the development activities is essential to ensure the mitigation measures are implemented.
- Monitoring for non-compliance must be done on a daily basis by the contractors.
- Photographic records of all incidents and non-compliances must be retained.
- Monitoring should especially focus on preventing water pollution, avoiding wetland habitat, and introducing runoff from the development responsibly into the receiving environment.

Impact Management Measures as per Phase:

Design Phase

- Buffer Zone:
 - Identify and demarcate the aquatic impact buffer zone (to be considered a No-Go zone).
 - 10 m from the boundary of the delineated freshwater habitat.

Construction Phase

- Buffer zone:
 - No construction, including workers and vehicles, must be allowed within the buffer area.
- Stormwater Management:

Stormwater management techniques and infrastructure must be implemented. These should achieve the following result:

 - Manage runoff generated by the development and introducing it responsibly into the receiving environment.
 - The stormwater flows must enter the wetland areas in a diffuse flow pattern without pollutants.
 - Stormwater managed by the development could be discharged into porous channels / swales ('infiltration channels or basins') running near parallel or parallel to contours within and along the edge of the development.
 - Frequent stormwater outlets must be designed to prevent erosion at discharge points. Stormwater exit points must include a best management practice approach to trap any additional suspended solids and pollutants originating from the proposed development. These include:
 - The placement of stormwater grates (or similar).
 - The use of grease traps/oil separators to prevent pollutants from entering the environment from stormwater is recommended.
 - To ensure the efficiency of these, they must be regularly maintained. Key maintenance will include:
 - Litter and sediment clearing.
 - Servicing and maintenance of key collection points like catch pits, detention tanks etc.
 - Such maintenance should be the responsibility of either the local municipality or, where possible, the relevant owners/estate associations, and budgeted for.
 - Figure 8 and 9 shows examples of measures that can be put in place on the terrace to restrict erosion and sedimentation caused by construction activities.

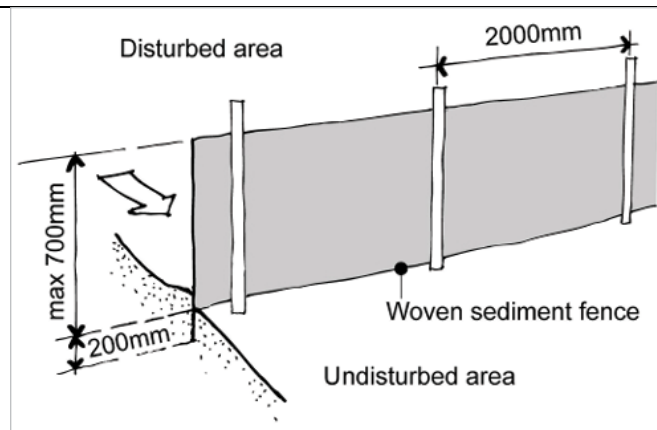


Figure 8: An example of a silt fence, which is a structure that could be put in place to restrict disturbance to the upslope area and it could potentially be used to delineate the buffer area.

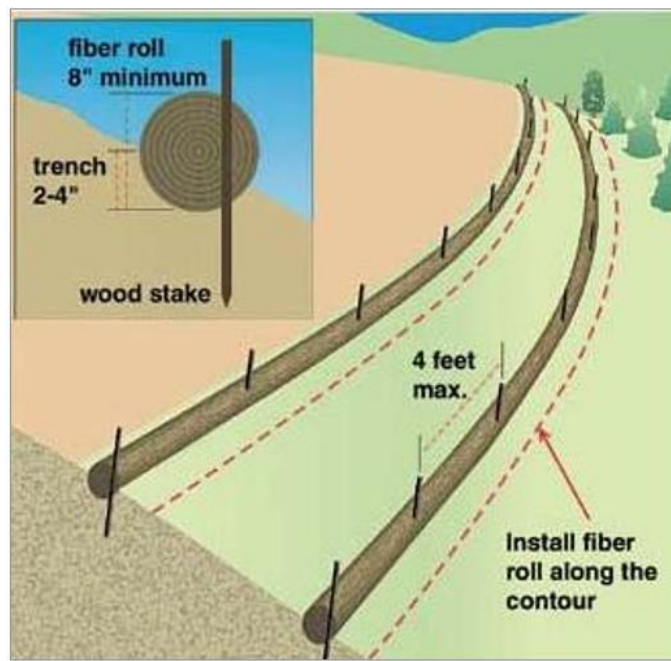


Figure 9: An example of a construction and/or rehabilitation methods to prevent erosion on the hillslope due to any soil disturbance and vegetation clearance.

- Soft infrastructure must be considered where practical. For example:
 - permeable surfaces can be done via permeable concrete block pavers (such as Amorflex), brick pavers, stone chip, and gravel and may contribute to slowing surface flows (especially if maintained).
- Erosion:
 - All erosion protection measures (e.g. Reno-mattresses) must be established to reflect the natural slope of the surface and located at the natural ground level.
 - Erosion protection measures must be located within the layout footprint and not encroach into the buffer areas.
 - If this is not possible, the assessment must be amended after the stormwater management plan, location of structures, and designs become available, to incorporate the impact of this encroachment.
- Stockpiles:
 - Stockpiles must not be located within 50 metres of the wetland.





- Should not be placed in vegetated areas that will not be cleared.
 - Erosion control measures including silt fences, low soil berms and/or shutter boards must be put in place around the stockpiles to limit sediment runoff from stockpiles.
 - Alternatively, the exposed slopes must drain into small temporary stormwater and silt traps/ponds.
- Monitoring:
 - Regular inspections during the operational phase should also be undertaken to ensure that functions are not undermined by inappropriate activities.





Post-construction/ Rehabilitation Phase

Although it is recommended that no construction should be allowed to occur within or impact upon watercourses under the current proposal, there is always potential for accidental disturbance therefore guidelines for rehabilitation of aquatic habitats are provided. Important guidelines for rehabilitation are:

- Rehabilitation Plan:
 - A rehabilitation plan must be compiled with the assistance of a botanist.
- Indigenous Vegetation:
 - Establishment of indigenous vegetation cover to filter run-off before it enters the freshwater habitat.
- Alien Invasive Species Management:
 - Alien invasive plant species must be removed (See Table 7)
 - Contractor must monitor the area for newly established alien species during the contract and establishment period, which if present must be removed.
 - Removal of these species shall be undertaken in a way which prevents any damage to the remaining indigenous species and inhibits the re-infestation of the cleaned areas.
 - Alien/ invasive species shall not be stockpiled. It should be removed from site and dumped at an approved site.
 - Any use of herbicides in removing alien plant species is required to be investigated by the ECO before use, for the necessity, type proposed to be used, effectiveness and impacts of the product on aquatic biota.
- Monitoring:
 - A monitoring programme shall be in place, not only to ensure compliance with the EMPr throughout the construction phase, but also to monitor any post-construction environmental issues and impacts such as increased surface runoff. The monitoring should be regular and additional visits must be taken when there is potential risk to the aquatic habitat.
- Waste Disposal:
 - The solid domestic waste must be removed and disposed of offsite.
- Removal of vegetation
 - Only when essential for the continuation of the project.
 - No disturbance to the adjoining natural vegetation cover or soils.
 - Care must especially be taken near the wetland not to damage the vegetation.
- Erosion:
 - Stabilize any erosion structures created during construction. This may also include the need to deactivate any erosion headcuts/rills/gullies that may have developed.

Table 7: Control options for likely alien invasive plants species:

<p><i>Acacia cyclops</i> (Rooikrans)</p>	<p>Manual: Hand pulling or hoeing of seedlings or saplings. Grubbing, hoeing and digging out of immature stage up to 2 m. Felling and cutting of stump to the ground for larger mature trees.</p> <p>Bio-Control: Indigenous field mice eat the seeds. Rooikrans seed weevil. Flower galler (<i>Dasineura dielsi</i> Rubsaamen). Seed feeder (<i>Melanterius servulus</i>).</p>	
<p><i>Acacia mearnsii</i> (Black Wattle)</p>	<p>Manual: Hand pulling of seedlings or saplings <40 cm. Grubbing. Hoeing. Digging of immature trees up to 2 m. Felling used for large mature trees. Ringing, ring of 10 cm width in large plants.</p> <p>Chemical: Seedlings – Mamba, Garlon 4, Viroaxe. Tree stumps – Timbrel 3A.</p> <p>Bio Control: Stump fungus (<i>Cylindrobasidium laeve</i>) applied to freshly cut stumps. Seed weevil (<i>Melanterius maculates</i>).</p>	
<p><i>Arundo donax</i> (Spanish Reed)</p>	<p>Manual: Repeated removal. Cutting of stalks. However, cut stalks can re-root and manual methods generally unsustainable.</p> <p>Chemical: 3Apply MAMBA or Nexus GLYPHOSATE 360 Reg. NO L7113: Act /Wet no 36/ 1947. This is a broad spectrum herbicide so applicable in dense monospecific stands. Ideally use as foliar spray, just before winter (as this is the time that translocation in plant nutrients to the root-mass takes place in preparation for winter dormancy and toxin transfer to roots is most effective. If stands too dense for good foliar application, cut stems and then apply as foliar to resprouting material – but note that cut material may resprout and transfer to roots less effective as cutting stimulates stem growth. If mixed stands, use GLYPHOSATE 360, on cut stems, but note less effective.</p>	
<p><i>Lantana camara</i></p>	<p>Manual: Hand pulling of seedlings or saplings. Grubbing or hoeing of small patches. Cutting is ineffective as plant coppices use of herbicides needed. Large infestation should be crushed or rolled with brush cutters then stumps treated with herbicides.</p> <p>Chemical: Seedlings/ saplings – Mamba/Kilo Touchdown / Access. Mature tree stumps – Chopper / Access/ Timbrel 3A.</p> <p>Bio Control:</p>	

	Flower galler (<i>Aceria lantanae</i> Cook). Leaf miner (<i>Calycomyza lantanae</i>). Leaf sucker (<i>Falconia intermedia</i>). Leaf feeder (<i>Hypena laceratalis</i> Walker). Leaf miner (<i>Octotoma scabripennis</i> Guerin-Meneville). Leaf miner (<i>Ophiomyia camarae</i> Spencer). Seed miner (<i>Ophiomyia lantanae</i>). Leaf & flower sucker (<i>Teleonemia scrupulosa</i> Stal). Leaf miner (<i>Uroplata girardi</i> Pic).	
<i>Pennisetum clandestinum</i> (Kikuyu grass)	<p>Manual: hand pull by roots; kikuyu often associated with raised fill / disturbed areas – removal will reduce invasion opportunities; Inclusion of hard paths on upland edge of river, buffer or wetland provides hard management edge from which to manage invasion and also reduces to some extent root spread.</p> <p>Chemical: Spray with Roundup ® while grass is actively growing (not when dormant) and follow up spray any regrowth after 4 months.</p>	
<i>Rubus</i> spp (Bramble)	<p>Chemical: Mamba max – most effective in autumn when downward sap movement.</p>	
<i>Cirsium vulgare</i> (Scottish Thistle)	<p>Manual: hand pull</p>	
<i>Hedychium gardnerianum</i> (Kahili ginger lily)	<p>Manual: hand pull</p>	

Operational Phase

- Buffer Area
 - Must be maintained.
 - All proposed structures for stormwater control and slope stability must be incorporated within the layout area and not in the buffer.

- Apart from erosion control and alien invasive plant eradication, the encroachment of any further infrastructure or vehicles must be prevented.
- Stormwater Management
 - A formal stormwater management plan has not been compiled, the plan should incorporate appropriate ecological input and be developed based on Sustainable Drainage Systems (SUDS).
 - Consideration is given to the collection and treatment of stormwater prior to discharge into the natural environment.
 - Infrastructure must be designed to ensure the runoff from the development is not highly concentrated before entering the buffer area.
 - The volume and velocity of water must be reduced through discharging the surface flow at multiple locations surrounding the development, preventing erosion.
 - Erosion from this stormwater system must be rehabilitated and the volume/velocity of the water reduced through further structures and/or energy dissipaters.
 - The use and maintenance of grease traps/oil separators to prevent pollutants from entering the environment.
- Wastewater
 - Appropriate wastewater infrastructure must be designed to prevent any such water from entering the surrounding environment.
- Water tanks:
 - To catch rainwater runoff from roofs for watering gardens.
 - Will reduce stormwater runoff and possible erosion associated therewith.
 - Tanks can also be installed at the communal buildings.
- Waste Management:
 - The local authority should provide suitable waste disposal facilities for the recycling and disposal of waste.
- Education:
 - Engage with the community and Home Owners Association.
 - Educate people on the buffer and the water resources and why they are protected and what human activities are allowed.
 - The landowners and community could be involved in the monitoring of the aquatic habitat.
 - Establish signage near the boundary of the buffer zone to:
 - Mark the boundary.
 - Educate the community about the purpose and value of protecting buffer zones.
 - Information can include:
 - Identification, description and visual of alien invasive plant species.
 - Identification, description and visual of indigenous species.
 - Promoting a sense of ownership from the residents of their open space area will benefit them as well as the environment.

HERITAGE IMPACT ASSESSMENT

No mitigation measures have been advised, as both Erven 103 and 104 Wittedrift have no particular aesthetic or historical significance as they are currently undeveloped and vacant. None of the surrounding structures are of architectural significance and must be considered ungradable in terms of HWC's criteria. It would therefore appear that there are no heritage resources on the site or in its setting.

3.	List the specialist investigations and the impact management measures that will not be implemented and provide an explanation as to why these measures will not be implemented.
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There will be no impact management measures implemented from the Heritage Assessment, as there were none recommended, as there were no heritage resources on the site or in its setting.

4. Explain how the proposed development will impact the surrounding communities.

The proposed development has the ability to impact upon the surrounding community in both positive and negative ways, these include:

Positive Impacts:

- The proposed development will allow the once vacant and derelict Erf 103 and 104, to be transformed, to match the residential character of the surrounding area. Although the development boasts higher density residential, it still has more familiarity than its previous status.
- The development will attract temporary employment during construction, and long-term employment during operational phase, for locals.
- The development will attract new businesses and development, as well as support existing businesses by bringing in people with demands for goods and services.
- The development will increase the rates base of surrounding community, increasing surrounding property values, in the Wittedrift area.
- The development will encourage the municipality to address their existing services, and service demand, ensuring the infrastructure (external), is adequate and in good condition.
- The development can lead to a stronger community, by attracting people who care about their surroundings, and neighbours, their safety and wellbeing within their community.

Negative Impacts:

- The surrounding community will experience an increase in noise, light, and dust nuisances during construction, which will be drastically reduced, as they are temporary and confined to the construction phase. Thereafter the development will contribute more light, and noise, at a level that is normal within an urban/residential area.
- Traffic will be the lasting impact, although it will be high during the construction phase, it will be reduced to a medium – low level impact during operational phases.
- The community will no longer be able to utilize the footpath down to the watercourse, via the wetland area, nor will they be able to utilize this area for dumping.
 - Although this may lead to a frustration for the community, it is a positive impact on the environment, as every citizen has a responsibility to discard their waste in a manner that is not harmful to the environment, and there has been no environmental protection in place, preventing this illegal dumping and pollution.

5. Explain how the risk of climate change may influence the proposed activity or development and how has the potential impacts of climate change been considered and addressed.

Table 8: Climate change impacts, and their consideration in the proposed development.

According to the Western Cape Department of Environmental Affairs and Development Planning, climate change will affect the Western Cape in the following ways:	How has the potential climate change impacts been integrated in proposed development.
Higher average annual temperature	<ul style="list-style-type: none"> • The residential housing and assisted housing units should be designed, and building materials integrated to allow for the retention of heat on cold nights, and to accommodate airflow and keep the units cool during hot days. • Daily assessment of weather conditions should be completed during construction stage, to ensure conditions are viable for labourers to be working outside (ie: temperatures are not excessive).
Higher maximum temperatures	
More hot days and more heat waves	
Higher minimum temperatures	
Fewer cold days and frost days	

	<ul style="list-style-type: none"> • Potable water should be available for consumption during construction, to keep labourers hydrated.
Reduced average rainfall in the Western Cape, particularly the western parts	<ul style="list-style-type: none"> • The development must integrate rainwater capturing initiatives, such as jojo tanks, this can be used as follows: <ul style="list-style-type: none"> • Landscaping. • Gardening. • Filling of the pool for recreational purposes.
Rising sea levels	<ul style="list-style-type: none"> • The development is not situated close to the coastline.
Increased fire risks	<ul style="list-style-type: none"> • Restrictions should be established to limit fire hazards, ie, smoking, cooking, etc. This can be applied throughout the operational phase. • During construction fires should be strictly prohibited, smoking should be discouraged on site, if it is allowed, there should be a designated area, with an appropriate bin to contain used cigarettes, with an appropriately heavy cover.
Increase in the frequency and intensity of extreme weather events, including floods, droughts, and storm surges	<ul style="list-style-type: none"> • This should be considered in the design of the houses, and foundation for the proposed development.

The threat of climate change has impacted the way we design and plan development, as well as where we develop. Consideration must be given to the potential direct and indirect impacts of climate change, and therefore the following measures are considered throughout the various phases of development :

Development, Design and Construction.

- Using buckets of water to clean tools and machinery, rather than running water to preserve water.
- Capture rainwater for utilization on site.
- Ensure that fire safety regulations and requirements are incorporated into the development (Water pressures, fire hoses and fire hydrants).
- Green Building technologies should be used in the design and construction of the buildings and facilities such as heating, water harvesting, lighting, insulation, aspect (north facing) etc.
- The open space should be cleared of alien vegetation, that grow faster, and use more water than indigenous vegetation.
- Establish indigenous vegetation, as much as possible.
- Couple rainwater capturing with existing or proposed stormwater infrastructure.
- Establish jo-jo tanks for rainwater capturing, via the drainage system of each house/building.

Operation

- Employ metered water usage and measurement to monitor water use and enable an effective response, such as reducing water pressures or water temperature.
- Eliminate leaks by conducting annual checks of pipes, taps and hoses.
- Greywater use can significantly reduce the amount of potable water needed for landscaping irrigation, toilet flushing and other non-drinking water applications. To increase greywater recovery and use, coordinate with local water authorities and organizations to explain the value of greywater recovery and the benefits to them and their community. This can be done

in conjunction with water saving workshops and infographics to create awareness and improve the occupants knowledge of water saving and water scarcity.

- Educate the community.

6. Explain whether there are any conflicting recommendations between the specialists. If so, explain how these have been addressed and resolved.

There are no conflicting recommendations between the specialists.

7. Explain how the findings and recommendations of the different specialist studies have been integrated to inform the most appropriate mitigation measures that should be implemented to manage the potential impacts of the proposed activity or development.

The findings and recommendations have been integrated into the impact tables (Section F, of this document), and the EMPr, so as to guide the various phases of the project.

8. Explain how the mitigation hierarchy has been applied to arrive at the best practicable environmental option.

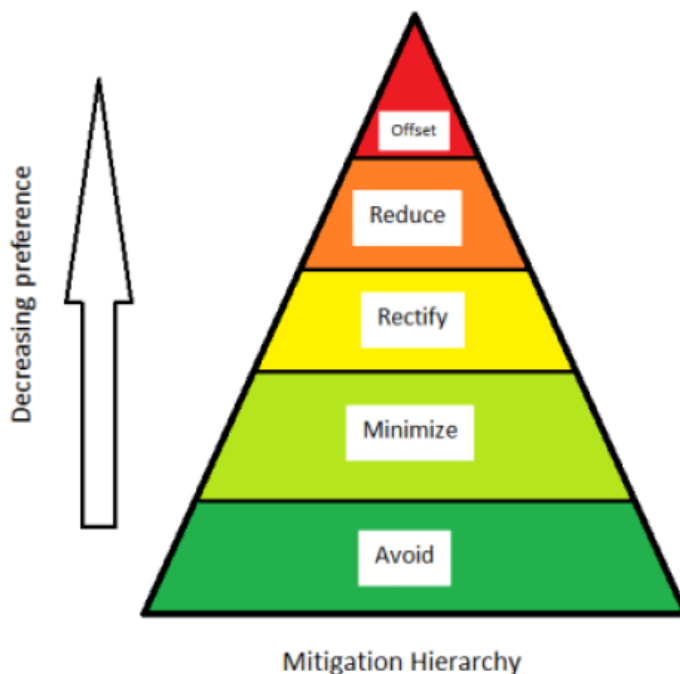


Figure 10: The Mitigation Hierarchy

This hierarchy was considered while determining the best practicable environmental option for the proposed development. Activities related to the proposed development have been considered. Where possible activities have been avoided, therefore all activities included in the proposal of this development are essential for the successful implementation and operation of this development.

Therefore, mitigation measures for the proposed development activities, have been established to firstly minimize and rectify, where possible or radically reduce the predicted impacts, through the inclusion of additional mitigation measures, as further detailed in the EMPr.

No offsets are required for the proposed development.

SECTION J: GENERAL

1. Environmental Impact Statement

1.1. Provide a summary of the key findings of the EIA

The key findings of the EIA indicate that the proposed development, particularly via the implementation of the Preferred Alternative 1 Layout, can have a positive socio-economic and environmental impact in terms of:

- Creating employment in a temporary to permanent manner, for the surrounding community.
- Increasing the scale of the economy.
- Providing for an immediate need identified in the municipality and within this area, at affordable prices.
- Providing efficient care and facilities for efficient care and recreational activities.
- Providing protection and maintenance to the Bosfontein Wetland area and Bosfontein River.
- Implementing stormwater infrastructure to protect and manage stormwater flow into the Wetland environment, of where there was limited management in this regard.
- Allowing for the clearance of alien invasive vegetation.
- Allowing for the re-establishment of indigenous vegetation and fauna.

While negative impacts, particularly as per the Preferred Alternative 1 Layout, while found to be concerning, can be efficiently mitigated to reduce the impact significance on the environment, as compared to the Alternative 2 Layout. These impacts include:

- Aquatic impacts: flow modification, loss /disturbance of fauna and flora, water pollution and sedimentation and erosion.
- Alteration of sense of place, visual impacts, dust and noise creation.
- Traffic.
- Safety/Security and Theft.

All the noted positive impacts are predicted to be the outcome upon an otherwise disturbed and neglected portion of land that may have been exposed to further disturbance, from dumping and alien invasive species, or land invasions, should the current situation persist.

Furthermore, the option of a gravity sewer network, will be a positive option for this development, as the alternative of a sewer pump station would pose a high risk during operation, as well as require on-going maintenance, and monitoring, at the expense of the residents.

The positive impacts are highly dependent on the implementation of the specialist and EAP's mitigation measures and recommendations. Therefore, the developers appointed Contractor should be strictly monitored for compliance with the agreed upon permits/EMPr and EA conditions, by an independent Environmental Control Officer.

1.2.	Provide a map that that superimposes the preferred activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers. (Attach map to this BAR as Appendix B2)
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Refer to Appendix B2

1.3.	Provide a summary of the positive and negative impacts and risks that the proposed activity or development and alternatives will have on the environment and community.
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Table 9: Summary of negative and positive impacts.

CONSTRUCTION PHASE IMPACTS				
IMPACT	PREFERRED ALTERNATIVE 1: LAYOUT		ALTERNATIVE 2: LAYOUT	
	IMPACT SIGNIFICANCE BEFORE MITIGATION	IMPACT SIGNIFICANCE AFTER MITIGATION	IMPACT SIGNIFICANCE BEFORE MITIGATION	IMPACT SIGNIFICANCE AFTER MITIGATION
	Aquatic: disturbance/loss of aquatic vegetation and habitat	Medium (-)	Low (-)	Medium (-)

Aquatic: sedimentation and erosion	Medium (-)	Low (-)	Medium (-)	Medium (-)
Aquatic: water pollution	Medium (-)	Low (-)	Medium (-)	Low (-)
Aquatic: flow modification	Medium (-)	Low (-)	Medium (-)	Low (-)
Social Impact: Sense of Place (Noise, Dust And Lifestyle)	Medium (-)	Low (-)	Medium (-)	Low (-)
Traffic	Medium (-)	Low (-)	Medium (-)	Low (-)
Loss of Terrestrial Vegetation / Habitat & Erosion	Medium - High	Medium (-)	Medium - High	Medium (-)
Visual	Medium (-)	Low - Medium (-)	Medium (-)	Low - Medium (-)
Socio-Economic Impacts – Creation of Multiple Job Opportunities & Capital Expenditure	Medium (+)	Medium (+)	Medium (+)	Medium (+)

OPERATIONAL PHASE IMPACTS				
IMPACT	PREFERRED ALTERNATIVE 1: LAYOUT		ALTERNATIVE 2: LAYOUT	
	IMPACT SIGNIFICANCE BEFORE MITIGATION	IMPACT SIGNIFICANCE AFTER MITIGATION	IMPACT SIGNIFICANCE BEFORE MITIGATION	IMPACT SIGNIFICANCE AFTER MITIGATION
Aquatic: disturbance/loss of aquatic vegetation and habitat	Medium (-)	Low (-)	Medium (-)	Medium (-)
Aquatic: sedimentation and erosion	Medium (-)	Low (-)	Medium (-)	Medium (-)
Aquatic: water pollution	Medium (-)	Low (-)	Medium (-)	Low (-)
Aquatic: flow modification	Medium (-)	Low (-)	High (-)	Medium (-)
Social Impact: Sense of Place (Noise, Dust And Lifestyle)	Low (-)	Low (-)	Low (-)	Low (-)
Traffic	Medium - High	Low - Medium (-)	Medium - High	Low - Medium (-)
Visual	Medium (-)	Low (-)	Medium - High	Low - Medium (-)

Socio-Economic Impacts: Provision of Housing Opportunities	High (+)	High (+)
Socio-Economic Impacts – Creation of Multiple Job Opportunities & Capital Expenditure	High (+)	High (+)
Socio-Economic Impacts: Local Economic Revenue	Medium – High (+)	Medium – High (+)

2. Recommendation of the Environmental Assessment Practitioner (“EAP”)

2.1.	Provide Impact management outcomes (based on the assessment and where applicable, specialist assessments) for the proposed activity or development for inclusion in the EMPr
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The Environmental Management Programme has been attached as Appendix H of the Basic Assessment Report. The EMPr was compiled by SES to adhere to the requirements of the amended EIA Regulations (2014). The following Impact Management Objectives are of particular importance for this proposal:

Objective: Prevent erosion or sedimentation in the aquatic habitat

Impacts to avoid:

- Stockpiling close to the edge of the slope.
- Runoff with excessive amounts of sediment and contaminated soil entering the wetland area.
- Concentrated runoff toward the wetland area.
- Excessively high and uncovered stockpiles.
- Exposing bare soils for excessive periods of time.

Impact Management Actions:

- Implement stormwater management infrastructure and measures in accordance with a stormwater management plan.
- Cleared areas and any other area susceptible to erosion must be provided with a suitable cover as soon as possible and/or stabilised via the implementation of appropriate erosion control measures i.e. silt fences.
- Bund stockpiles, and locate stockpiles away from the edge of the slope.
- Re-establish vegetation and implement slope stabilization measures and berms, as soon as possible.
- The appropriate measures must be selected by the contractor in consultation with the ECO.
- Only the minimum area required to accommodate construction may be cleared of vegetation, to limit unnecessary exposure of surfaces.
- All disturbed areas must be rehabilitated after construction to the satisfaction of the Environmental Control Officer

Objective: Prevent pollution in the aquatic habitat

Impacts to avoid:

- Fuel, oil, lubricant or other pollutants may leak from vehicles/ machinery and contaminate soil, surface water and/or ground water.
- Spills of hazardous substances may contaminate environment.
- Negligence or spills from chemical toilets.
- Contaminated run-off from the site or site camp facilities may pollute soil or water resources.
- Waste (solid or liquid) from the construction site may be blown or washed into downslope into the wetland environment.
- Contamination of water may impact surrounding and downstream land/water users, biota and livestock.

Impact Management Actions

- Vehicles and machinery must be in good working order and must be regularly inspected for leaks.
- Drip trays must be utilised for vehicle/ machinery maintenance on site, where there is a risk of fuel/ oil/ lubricant spillage.
- Vehicle maintenance must take place on impermeable surfaces, where runoff is directed away from any natural area.
- Ablution facilities provided for construction workers must be placed away from the terrace edge.
- The ablution facilities must have a closed system and must be cleaned by a registered company on a weekly basis, who can dispose of the waste responsibly. A disposal/cleaning slip must be obtained.

Objective: Avoid damage to indigenous aquatic vegetation

Impacts to avoid:

- Unauthorized personnel entering the no-go buffer zone, and removing or damaging indigenous vegetation.
- Burial of aquatic vegetation due to erosion/sedimentation.

Impact Management Actions:

- Identify alien vegetation, educate key labourers on alien vegetation.
- Only trained labour, as above, should be allowed to enter the no-go buffer zone to remove alien vegetation.
- Ensure silt fencing is in place, and maintained throughout the construction phase.

Objective: Maintain/preserve sensitive areas/vegetation on site

- Seven oak trees have been identified on site.
- Milkwoods have been identified along the south-western corner of the study site.
- Bosfontein River wetland has been identified as a sensitive area, and a no-go aquatic zone has been identified.

Impacts to avoid:

- Removal or damage to the oak trees, milkwood trees or indigenous vegetation within the aquatic no-go buffer zone.
- Pollution or extension of construction footprint into aquatic habitat.

Impact Management Actions:

- Demarcate sensitive trees that should not be removed, using danger tape.
- Demarcate the no-go aquatic buffer zone, with a physical barrier.
- Ensure these demarcations are maintained daily.
- Ensure a management plan is created for the management and monitoring of the aquatic habitat, during operational phase.
- Ensure labourers undergo environmental awareness training to understand the sensitivities of the site, and the impacts that should be avoided, as well as the expectations to ensure compliance with the EMP and EA conditions.

Objective: Adequate Sewer Infrastructure

- Two sewer infrastructure options were considered, ie: a gravity sewer network that connects to the existing 110mmØ external sewer network, or a pump station located on preferred site.
- Due to the higher cost implications associated with a pump station (both to construct and to maintain at the developers cost), space requirements to accommodate a pump station and appropriately sized sump, and potential for overflow leading to pollution downslope during operation.
- The gravity sewer network, entailing the infilling and raising of ERF 103 ground level, identified as the preferred sewer infrastructure in the draft Engineering Report, should be considered the preferred alternative.

	<p>Impacts to avoid:</p> <ul style="list-style-type: none"> • Vegetation and faunal disturbance within the aquatic wetland area, during infilling of Erf 103. • Implement storm water control measures, to control and capture any runoff during infilling of Erf 103, before it is able to enter the aquatic area. <p>Impact Management Actions:</p> <ul style="list-style-type: none"> • Implement bank protection through either gabions or Loffelstein blocks. • Identify aquatic buffer zone and ensure that disturbance in this area is minimized as much as possible. • Ensure that the pipelines are constructed as per the recommended designs, materials and protective measures found in the Engineering Report. • Ensure an ECO is present to monitor the infilling of Erf 103, and to monitor the impacts that may occur on the aquatic environment.
2.2.	Provide a description of any aspects that were conditional to the findings of the assessment either by the EAP or specialist that must be included as conditions of the authorisation.
<p>An Environmental Control Officer must be appointed to monitor the compliance and implementation of the Environmental Management Programme, mitigation measures and the Environmental Authorization conditions.</p>	
2.3.	Provide a reasoned opinion as to whether the proposed activity or development should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be included in the authorisation.
<p>The EAP is of the opinion that the preferred development proposal should be implemented for the following reasons:</p> <ul style="list-style-type: none"> • Current state of site: <ul style="list-style-type: none"> • The existing state of the site, is highly disturbed, due to it being exposed to anthropogenic activities, including dumping of domestic, human waste and garden refuse. • The Heritage Assessment has identified that there is no aesthetic, historical or cultural significance. • Bosfontein River Wetland Open Space Management: <ul style="list-style-type: none"> • The preferred layout offers the opportunity to retain and maintain majority of the Bosfontein River Wetland, providing the opportunity for this area to remain in it's present condition, with minimal disturbance (inclusion of stormwater management infrastructure, slope stabilization, and walkways to accommodate the open space). • Coupled with an appropriate management plan, the Bosfontein wetland habitat, has the opportunity to flourish, as this plan should entail the removal of alien vegetation, promoting the establishment of indigenous vegetation, and a healthy ecosystem. • Socio-Economic Benefits: <ul style="list-style-type: none"> • Bitou Municipality will benefit through the enhanced rate base together with the payment of service charges by the beneficiaries to Bitou, over a long term period. • The development will address the existing demand for housing, that has notably risen in Plettenberg Bay, in recent years. Particularly related to retirement housing options. More specifically the immediate need is for retirement accommodation with assisted care aimed at an active population in the age range of 50 – 70 years of age. • This development is not just available to people who are 55 years' and older, meeting this need. It also accepts buyers consisting of families, of which at least one member is an elderly person (55 years' and older). 	

- This further creates a support system for the elderly, who will have the assistance of their family members, as well as reside in a development where a full spectrum of care and other recreational facilities, will be made available.
- The development will offer a retirement option that is affordable, as it has been established that there is a gap in the market, due to retirement homes starting at exceptionally high prices, in order to account for the additional care and facilities, required by their residents.
- While Wittedrift is considered a settlement, it offers a natural, quieter environment, with the basic amenities close by and a smaller residential community, making it attractive for retirees that are looking for a scenic and tranquil setting to settle down in.
- This development will address the growing scale of the economy, in the developing Wittedrift area.
- It's well known that very few developers want to provide frail care as it is a loss making exercise, however the need for these developments, equipped to cater to the needs of our elderly is steadily growing, as is highlighted in the motivation (Appendix L.3), where retirement homes are seen as a neglected market sector in Plettenberg Bay.
- This development would provide additional sustainable employment at the complex together with added buying power to support local businesses.

2.4.	Provide a description of any assumptions, uncertainties and gaps in knowledge that relate to the assessment and mitigation measures proposed.
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- It is assumed that all the information provided in this report and on which the report is based is correct and valid at the time receipt thereof.
- It is assumed that the proposed mitigation measures, as listed in this report and the EMPr (Appendix H), will be implemented and adhered to by all the relevant stakeholders involved.

As per the Freshwater Impact Assessment, the following assumptions and limitations:

- The location of the proposed development was extrapolated from data provided by the client. No shapefiles with a more accurate layout have been provided as of yet.
- No stormwater management plan was provided by the client.
- Aquatic ecosystems vary both temporally and spatially. Once-off surveys such as this are therefore likely to miss certain ecological information due to seasonality, thus limiting accuracy and confidence. The aquatic wetland habitat is cryptic in this instance and therefore not easy to classify.
- Infield soil and vegetation sampling was only undertaken within a specific focal area around the proposed development, while the remaining watercourses were delineated at a desktop level with limited accuracy.
- No detailed assessment of aquatic fauna/biota was undertaken.
- The vegetation information provided is based on observation not formal vegetation plots. As such species documented in this report should be considered as a list of dominant and/or indicator wetland/riparian species and only provide a very general indication of the composition of the riverine vegetation communities.
- The assessment of impacts and recommendation of mitigation measures was informed by the site-specific ecological concerns arising from the field survey and based on the assessor's working knowledge and experience with similar development projects. The degree of confidence is considered medium.
- The study does not include offset calculations.
- The study area has been subject to significant disturbances and the habitat is modified from the natural condition. The references condition is an estimation based on professional knowledge.
- The WET-Health-V2 assessment tool used is still in beta format. The assessor cannot be held liable for incorrect results due to errors with the functioning of the tool. The results are however believed to be an accurate representation of aquatic health.

2.5.	The period for which the EA is required, the date the activity will be concluded and when the post construction monitoring requirements should be finalised.
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- The period for which the EA is required = 5 years
- The date the activity will be concluded = 10 years
- When the post construction monitoring requirements should be finalised = 10 years

3. Water

Since the Western Cape is a water scarce area explain what measures will be implemented to avoid the use of potable water during the development and operational phase and what measures will be implemented to reduce your water demand, save water and measures to reuse or recycle water.

Development, Design and Construction.

- Using buckets of water to clean tools and machinery, rather than running water to preserve water.
- Capture rainwater for utilization on site.
- Ensure that fire safety regulations and requirements are incorporated into the development (Water pressures, fire hoses and fire hydrants).
- Green Building technologies should be used in the design and construction of the buildings and facilities such as heating, water harvesting, lighting, insulation, aspect (north facing) etc.
- The open space should be cleared of alien vegetation, that grow faster, and use more water than indigenous vegetation.
- Establish indigenous vegetation, as much as possible.
- Couple rainwater capturing with existing or proposed stormwater infrastructure.
Establish rainwater tanks for rainwater capturing, at each unit, as recommended by the engineers.

Operation

- Employ metered water usage and measurement to monitor water use and enable an effective response, such as reducing water pressures or water temperature.
- Eliminate leaks by conducting annual checks of pipes, taps and hoses.
- Greywater use can significantly reduce the amount of potable water needed for landscaping irrigation, toilet flushing and other non-drinking water applications. To increase greywater recovery and use, coordinate with local water authorities and organizations to explain the value of greywater recovery and the benefits to them and their community. This can be done in conjunction with water saving workshops and infographics to create awareness and improve the occupants knowledge of water saving and water scarcity.
- Educate the community.

4. Waste

Explain what measures have been taken to reduce, reuse or recycle waste.

The EMPr has encouraged waste management through the various phases of the project.

Construction Phase:

- An integrated waste management approach (AVOID first, then REDUCE, then REUSE, then RECYCLE, then DISPOSAL) must be adopted.
- Adequate waste receptacles, bins and skips will be available for the collection and removal of waste.
- Individual recycling bins for the various categories (paper, glass, plastic, etc.) must be provided, labelled and have a designated area on site, close to access points (for easy removal), away from any natural areas, and should have appropriately weighted lids, to prevent the wind from toppling the bins, resulting in waste dispersal.
- These bins must be emptied on a weekly basis and dropped off at a collection point for recycling by recycling companies, if possible obtain a slip as proof of this, and have this filed in the Environmental File.

- Infographics and educational notices to create awareness around sustainable waste management should be provided.
- Environmental awareness training will be conducted for all site workers to create awareness.
- Skips must also be provided for construction waste.
- These bins must be emptied on a regular basis and solid waste must be disposed of at a landfill licensed in terms of section 20 of the Environment Conservation Act, 1989 (Act No. 73 of 1989) or the National Environmental Management: Waste Act (Act No. 59 of 2008).
- Biodegradable refuse generated from the office / site camp, construction areas, vehicle yard, storage area or any other area shall be handled as indicated above.

Operational Phase:

- Appropriate waste receptacles should be established, for permanent use during operational phase.
- Identification of an appropriate waste disposal site, or arrangements for transportation of waste by the municipality, should be established.
- Separation of waste, in separate, labelled waste receptacles, should be encouraged.
- Littering should be restricted.
- Educate residents on recycling and reuse of waste, create infographics and educational notices to create awareness around sustainable waste management, and establish in community centre, and any other public area that may be appropriate.
- According to the draft Engineering Report refuse collection would be done by the municipality, from the refuse collection point in Protea Street. The standards used for the design of the road network will not be able to accommodate refuse vehicles within the development.
- A refuse building be provided at the entrance.

5. Energy Efficiency

8.1.	Explain what design measures have been taken to ensure that the development proposal will be energy efficient.
<p>In accordance with the motivation for rezoning and consolidation of the site, drawn up by Metroplan Town & Regional Planner. The principle of efficiency highlights the need for optimal utilisation of existing resources and infrastructure. The proposed infrastructure and services will enable the development of a sustainable settlement.</p> <p>Provision will be made for access to municipal bulk services. Substations will be identified for bulk electricity connections. Green Building technologies will be used in the design and construction of the buildings and facilities such as heating, water harvesting, lighting, insulation, aspect (north facing) etc., will also be taken into consideration.</p> <p>Furthermore, the Engineers have recommended the utilization of energy efficient LED type luminaires, be integrated into the final design.</p>	

DECLARATIONS

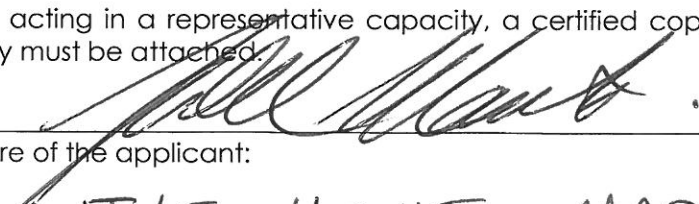
THE APPLICANT

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

WANCE DEL MONTE, in my personal capacity or duly authorized thereto hereby declare/affirm all the information submitted or to be submitted as part of the application is true and correct, and that I:

- am fully aware of my responsibilities in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), the Environmental Impact Assessment Regulations ("EIA Regulations") in terms of NEMA (Government Notice No. R. 982 refers) and any relevant specific environmental management act and that failure to comply with these requirements may constitute an offence in terms of relevant environmental legislation;
- appointed the environmental assessment practitioner, where applicable, which meets all the requirements in terms of regulation 13 of GN No. R 982 to act as independent environmental assessment practitioner for this application;
- will provide the environmental assessment practitioner and specialist, where applicable, and the competent authority with access to all information at my disposal that is relevant to the application;
- will be responsible for the costs incurred in complying with the NEMA EIA Regulations, 2014 and other environmental legislation including but not limited to –
 - costs incurred in connection with the appointment of the environmental assessment practitioner or any person contracted by the environmental assessment practitioner;
 - costs incurred in respect of the undertaking of any process required in terms of the regulations;
 - costs in respect of any fee prescribed by the Minister or MEC in respect of the regulations;
 - costs in respect of specialist reviews, if the competent authority decides to recover costs; and
 - the provision of security to ensure compliance with applicable management and mitigation measures;
- am responsible for complying with conditions that may be attached to any decision(s) issued by the competent authority;
- will ensure that the environmental assessment practitioner is competent to comply with the requirements of NEMA EIA Regulations, 2014 other environmental legislation;
- hereby indemnify, the government of the Republic, the competent authority and all its officers, agents and employees, from any liability arising out of the content of any report, any procedure or any action for which the applicant or environmental assessment practitioner is responsible in terms of the NEMA EIA Regulations, 2014 and any specific environmental management act; and
- will not hold the competent authority responsible for any costs that may be incurred by the applicant in proceeding with an activity prior to an appeal being decided in terms of the NEMA Regulations, 2014.

Note: If acting in a representative capacity, a certified copy of the resolution or power of attorney must be attached.



Signature of the applicant:

THE HOME MARKET NPC

Name of company:

Date: 16/9/2019

DECLARATION OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (“EAP”)

I, **Ameesha Sanker**, EAPASA Registration number (**Not applicable**) as the appointed EAP hereby declare/affirm the correctness of the:

- Information provided in this BAR and any other documents/reports submitted in support of this BAR;
- The inclusion of comments and inputs from stakeholders and I&APs;
- The inclusion of inputs and recommendations from the specialist reports where relevant; and
- Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties, and that:
- In terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the activity or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another EAP that meets the general requirements set out in Regulation 13 of NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review EAP must be submitted);
- In terms of the remainder of the general requirements for an EAP, am fully aware of and meet all of the requirements and that failure to comply with any the requirements may result in disqualification;
- I have disclosed, to the Applicant, the specialist (if any), the Competent Authority and registered interested and affected parties, all material information that have or may have the potential to influence the decision of the Competent Authority or the objectivity of any report, plan or document prepared or to be prepared as part of this application;
- I have ensured that information containing all relevant facts in respect of the application was distributed or was made available to registered interested and affected parties and that participation will be facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments;
- I have ensured that the comments of all interested and affected parties were considered, recorded, responded to and submitted to the Competent Authority in respect of this application;
- I have ensured the inclusion of inputs and recommendations from the specialist reports in respect of the application, where relevant;
- I have kept a register of all interested and affected parties that participated in the public participation process; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the NEMA EIA Regulations;



30th June 2020

Signature of the EAP:

Date:

Sharples Environmental Services.cc

Name of company (if applicable):

DECLARATION OF THE REVIEW EAP

I Betsy-Jane Ditcham, EAPASA Registration number 1480 as the appointed Review EAP hereby declare/affirm that:

- I have reviewed all the work produced by the EAP;
- I have reviewed the correctness of the information provided as part of this Report;
- I meet all of the general requirements of EAPs as set out in Regulation 13 of the NEMA EIA Regulations;
- I have disclosed to the applicant, the EAP, the specialist (if any), the review specialist (if any), the Department and I&APs, all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the NEMA EIA Regulations.



Signature of the EAP:

30/06/2020

Date:

Sharples Environmental Services cc

Name of company (if applicable):